



Inventor: MAERTENS, et al.  
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Atty. Dkt.: 2551-69

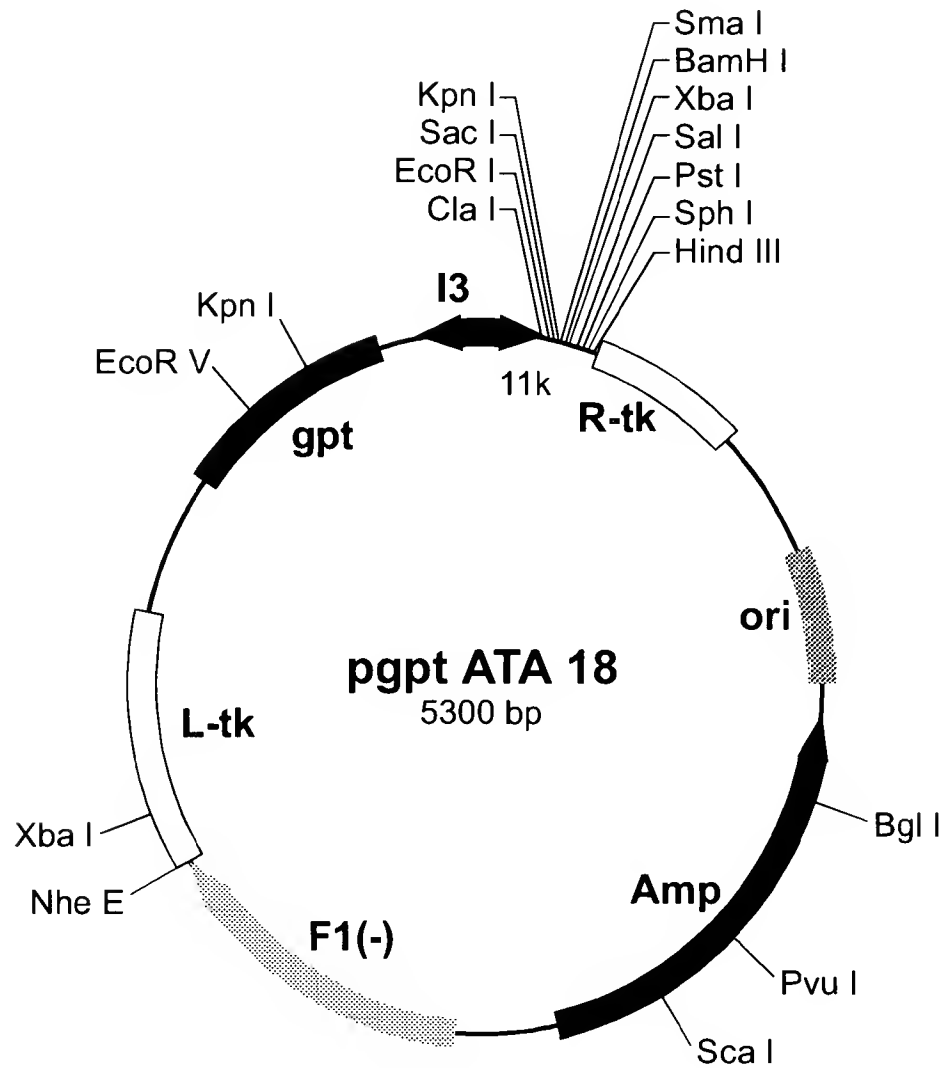


Figure 1

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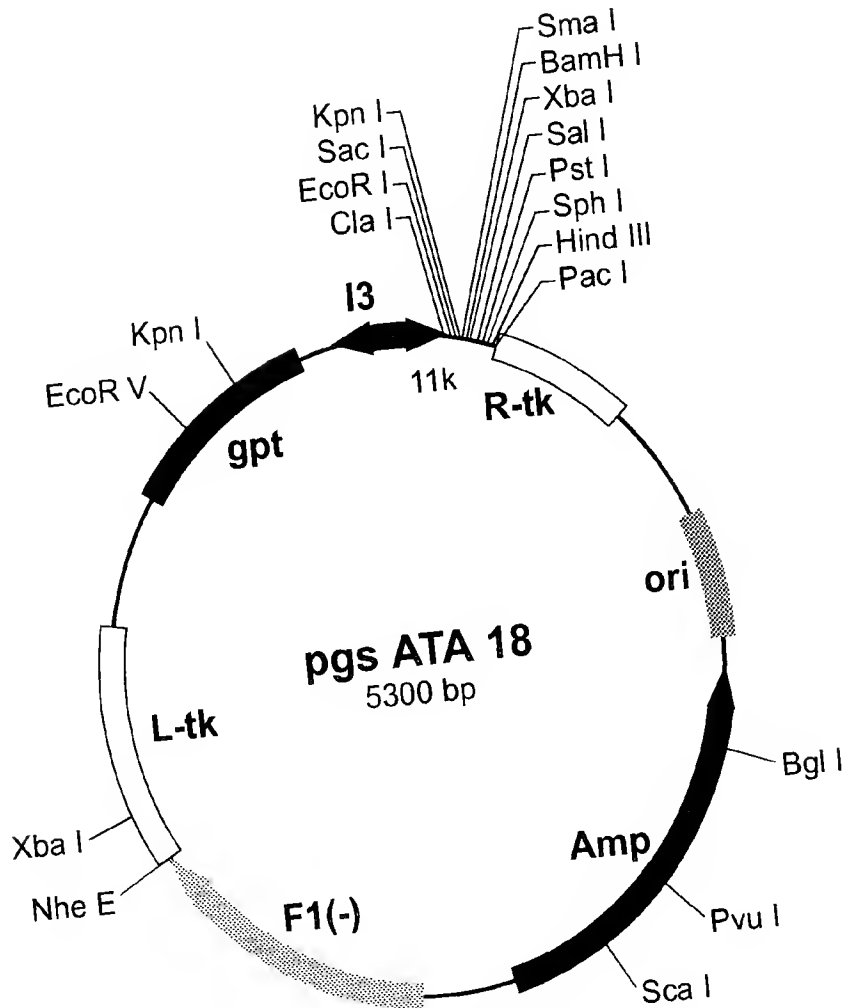


Figure 2



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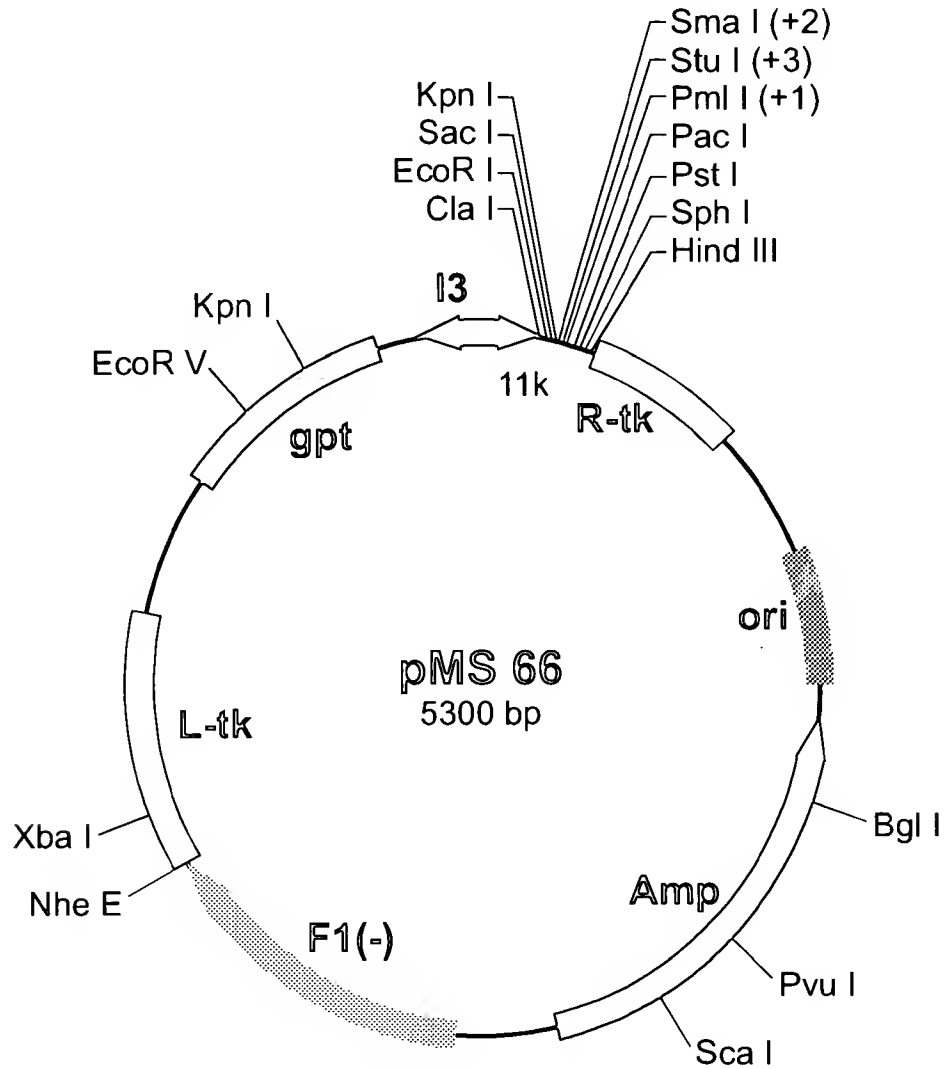


Figure 3

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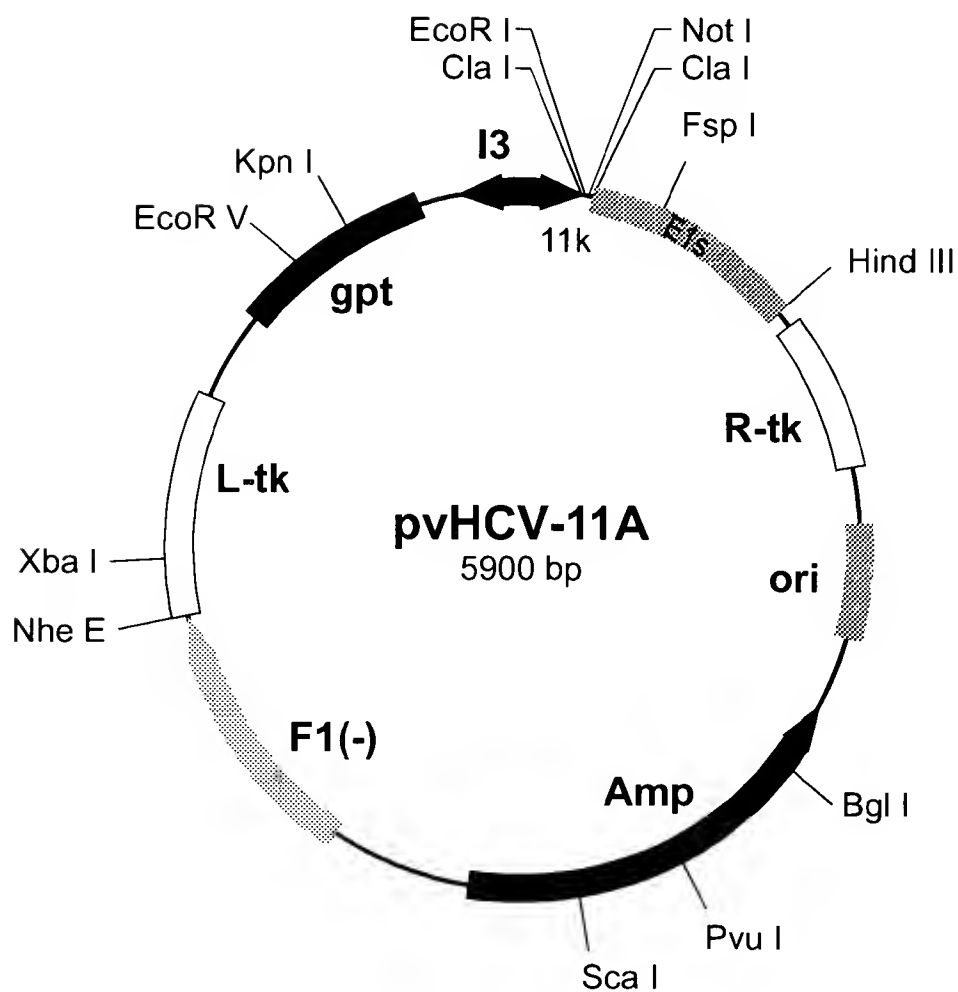


Figure 4

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Anti-E1 levels in NON-responders to IFN treatment

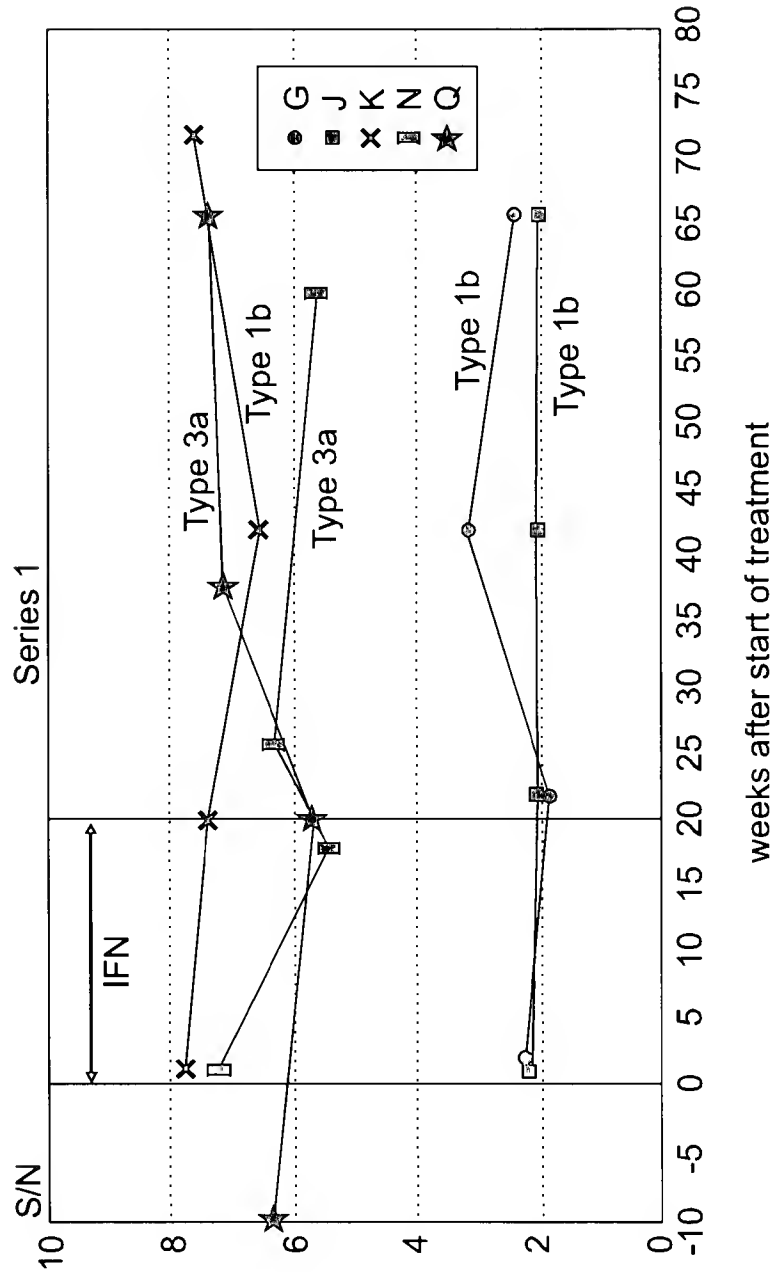


Figure 5

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# Anti-E1 levels in RESPONDERS to IFN treatment

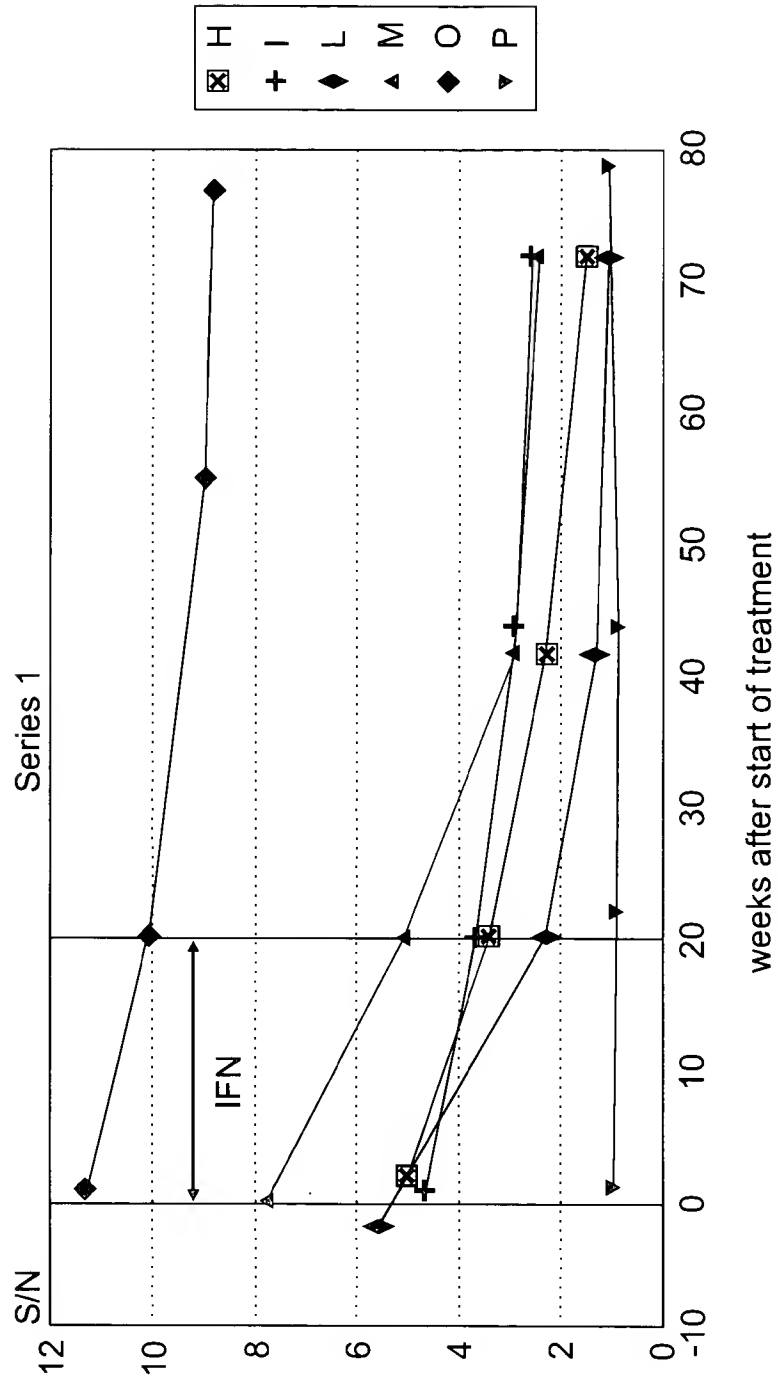


Figure 6

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# Anti-E1 levels in patients with COMPLETE response to IFN

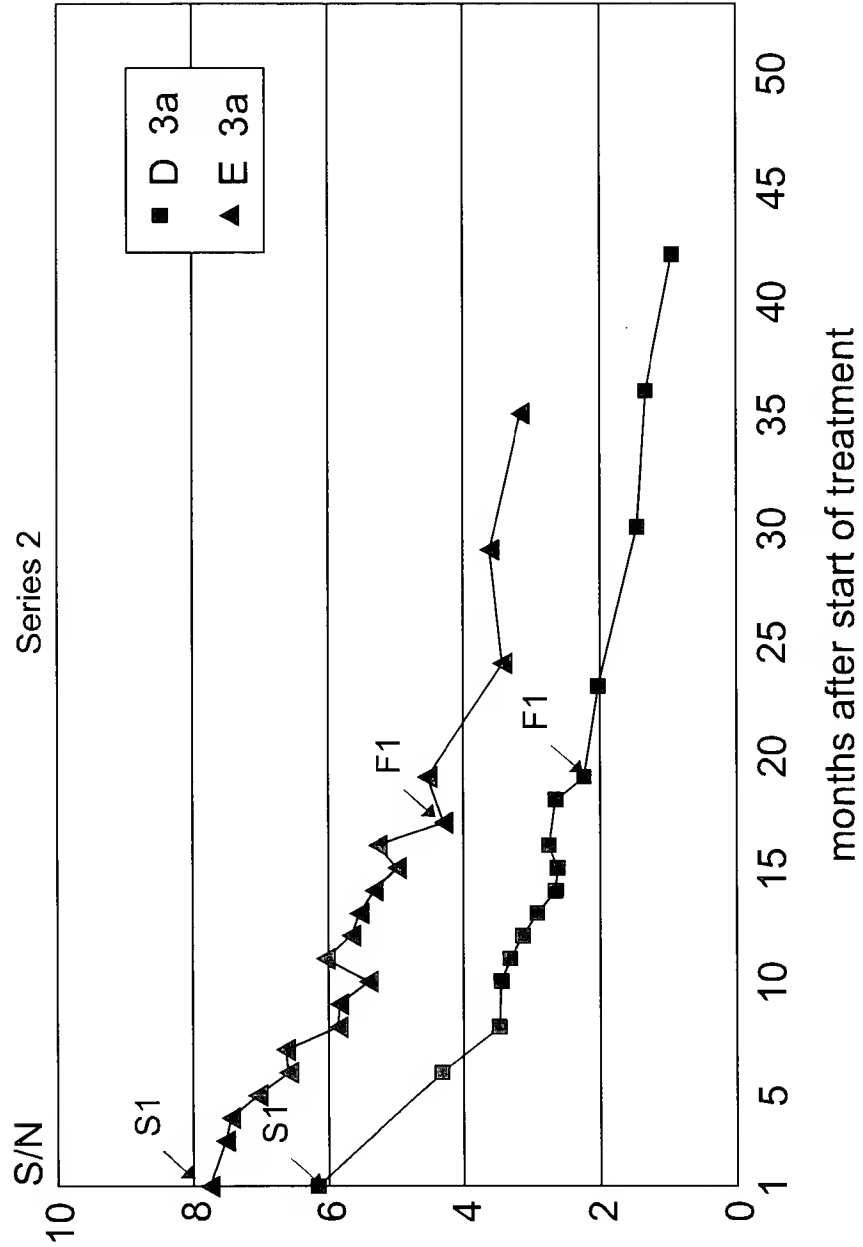


Figure 7

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# Anti-E1 levels in INCOMPLETE responders to IFN treatment

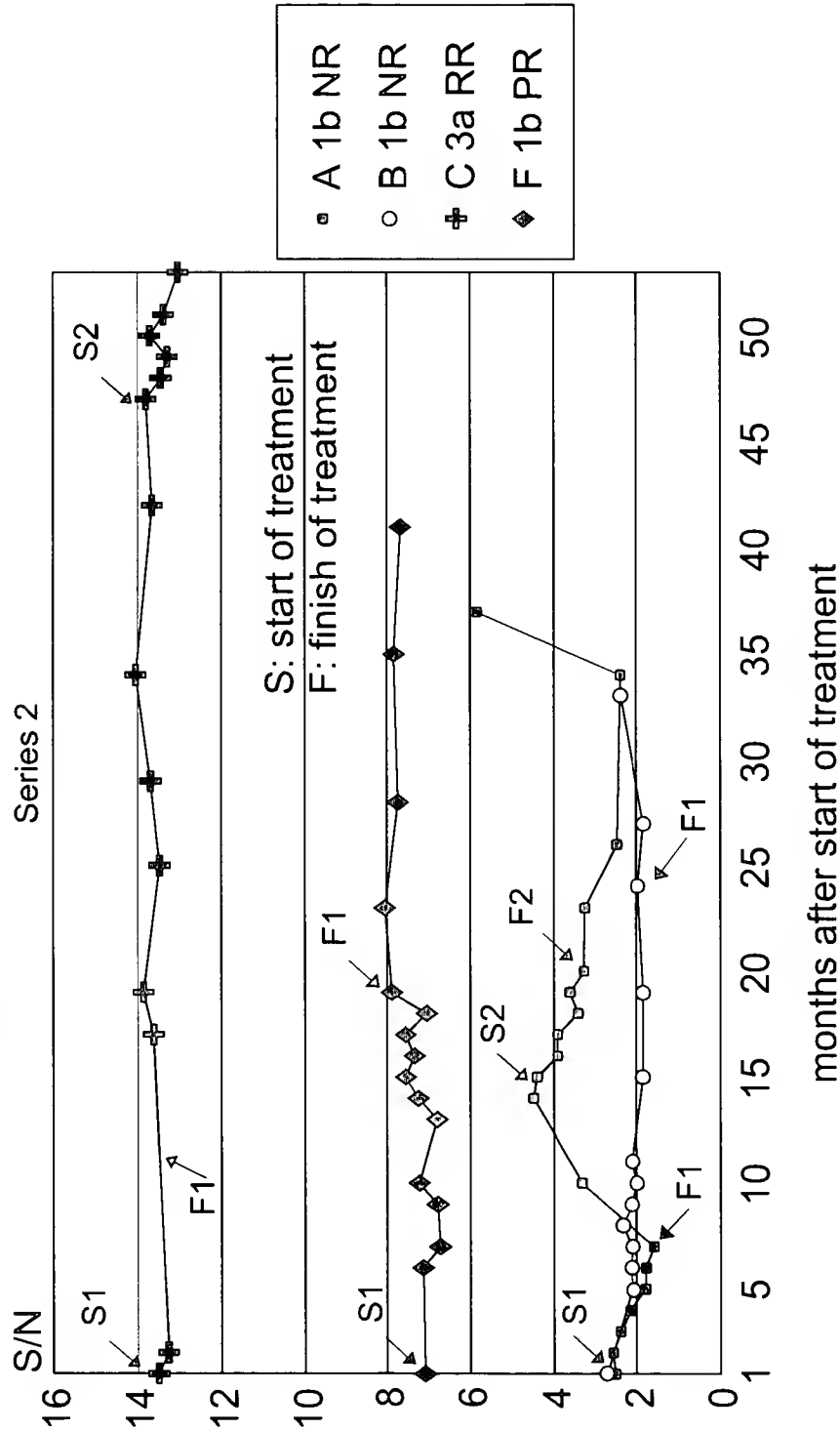


Figure 8



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Anti-E2 levels in RESPONDERS to IFN treatment

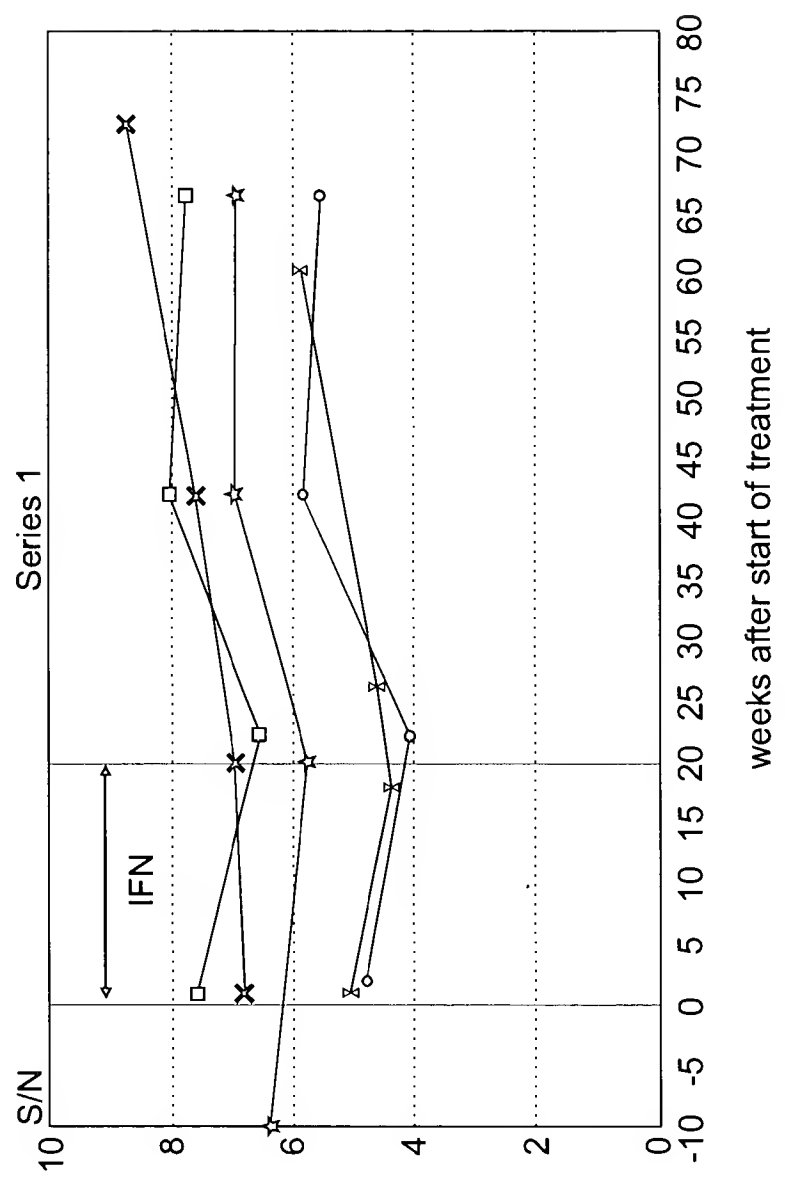


Figure 9

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Anti-E2 levels in RESPONDERS to IFN treatment

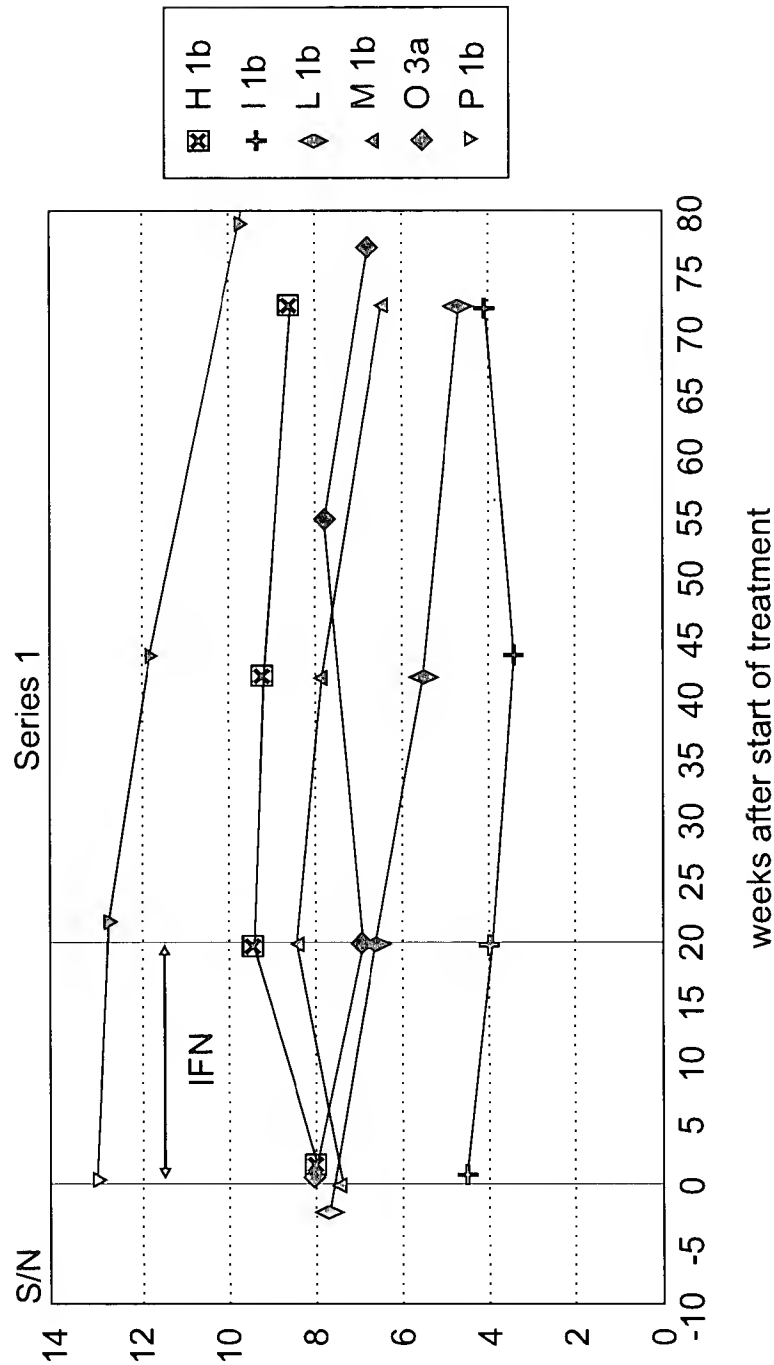


Figure 10

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Anti-E2 levels in INCOMPLETE responders to IFN treatment

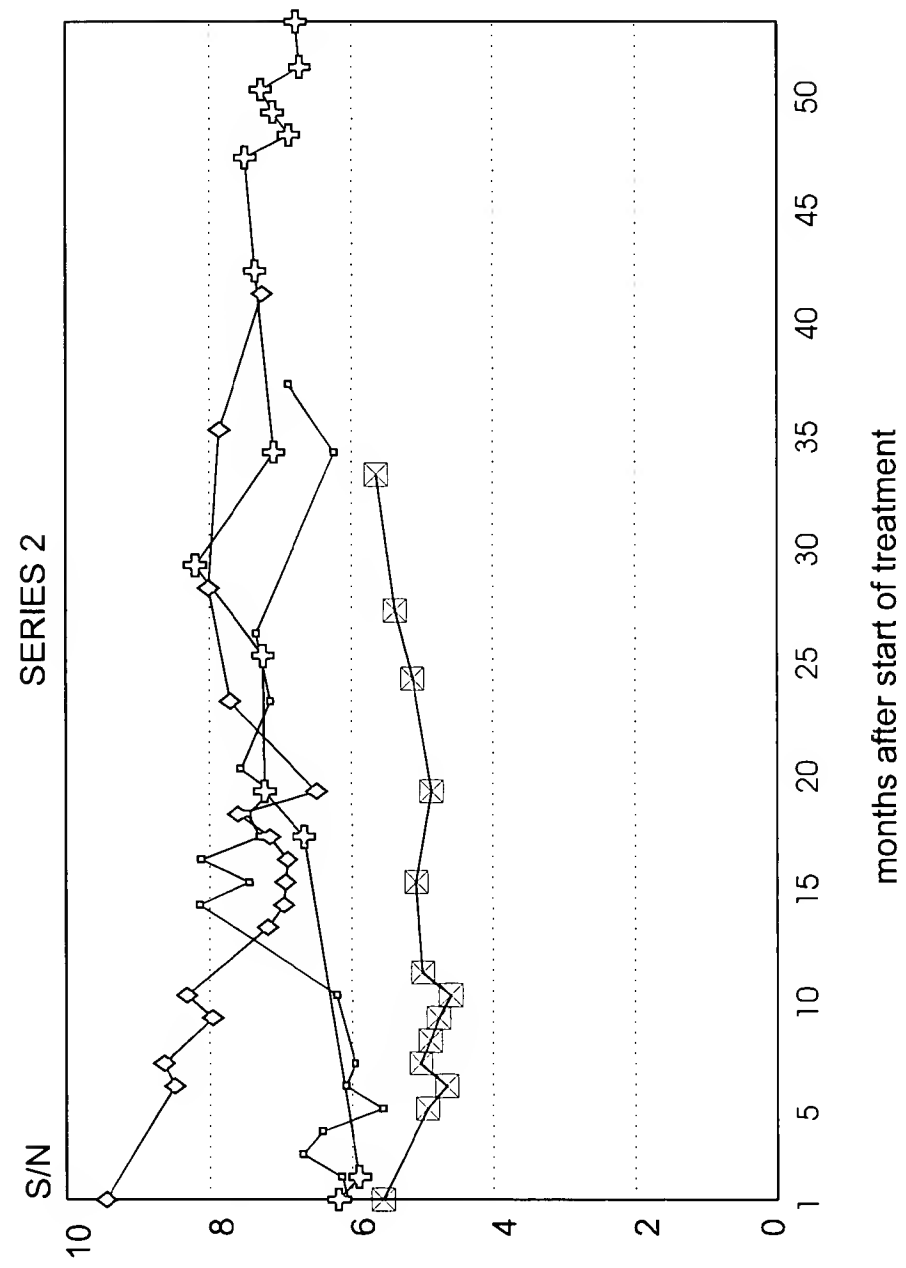


Figure 11



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# Anti-E2 levels in COMPLETE responders to IFN treatment

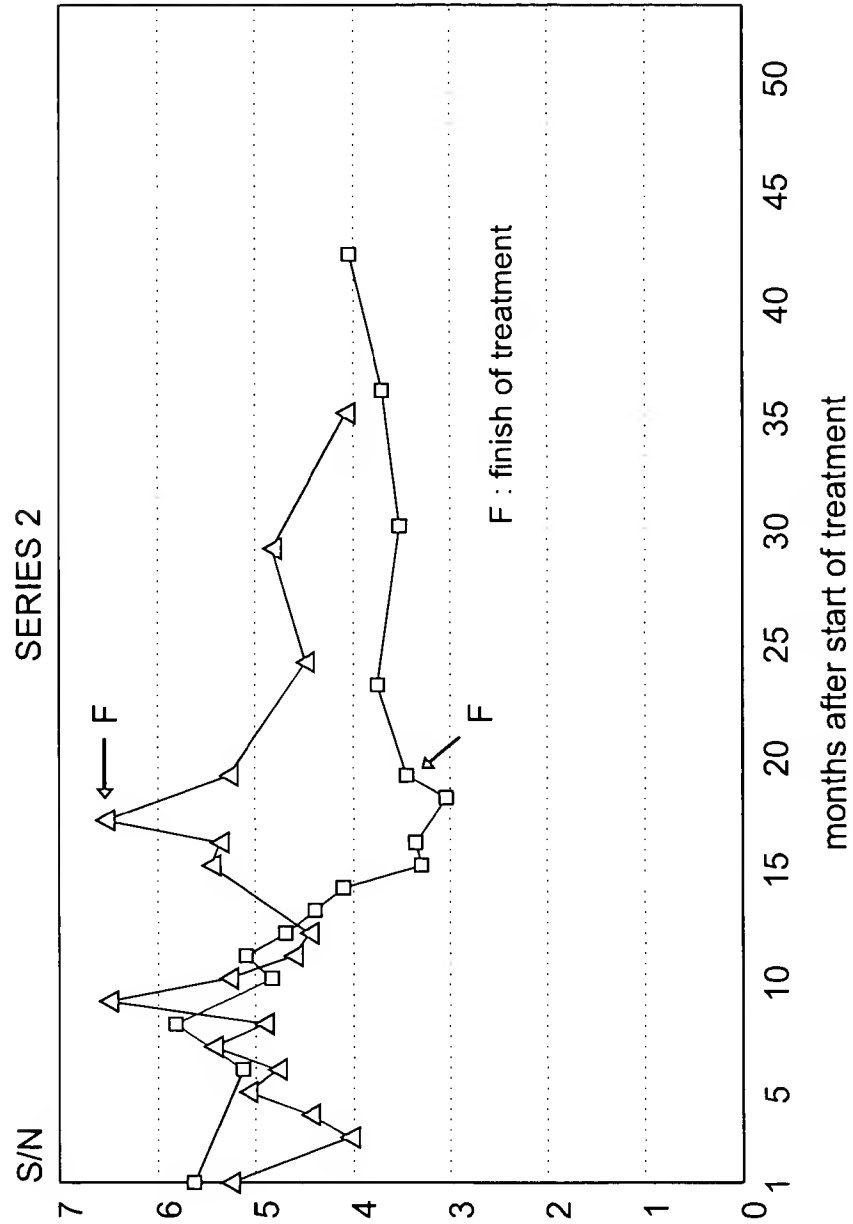


Figure 12

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# Human anti-E1 reactivity competed with peptides

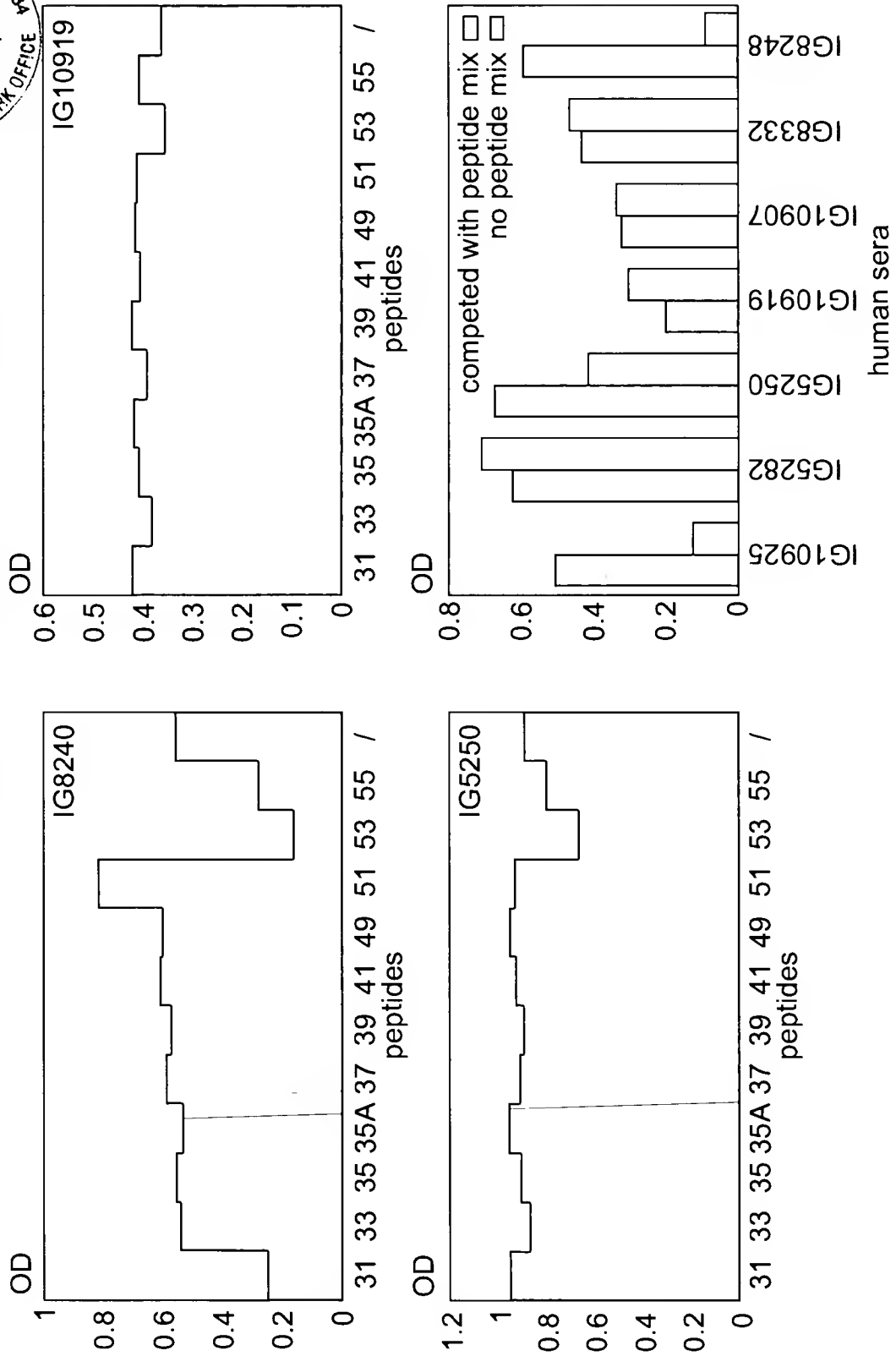


Figure 13

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# Competition of reactivity of anti-E1 Mabs with peptides

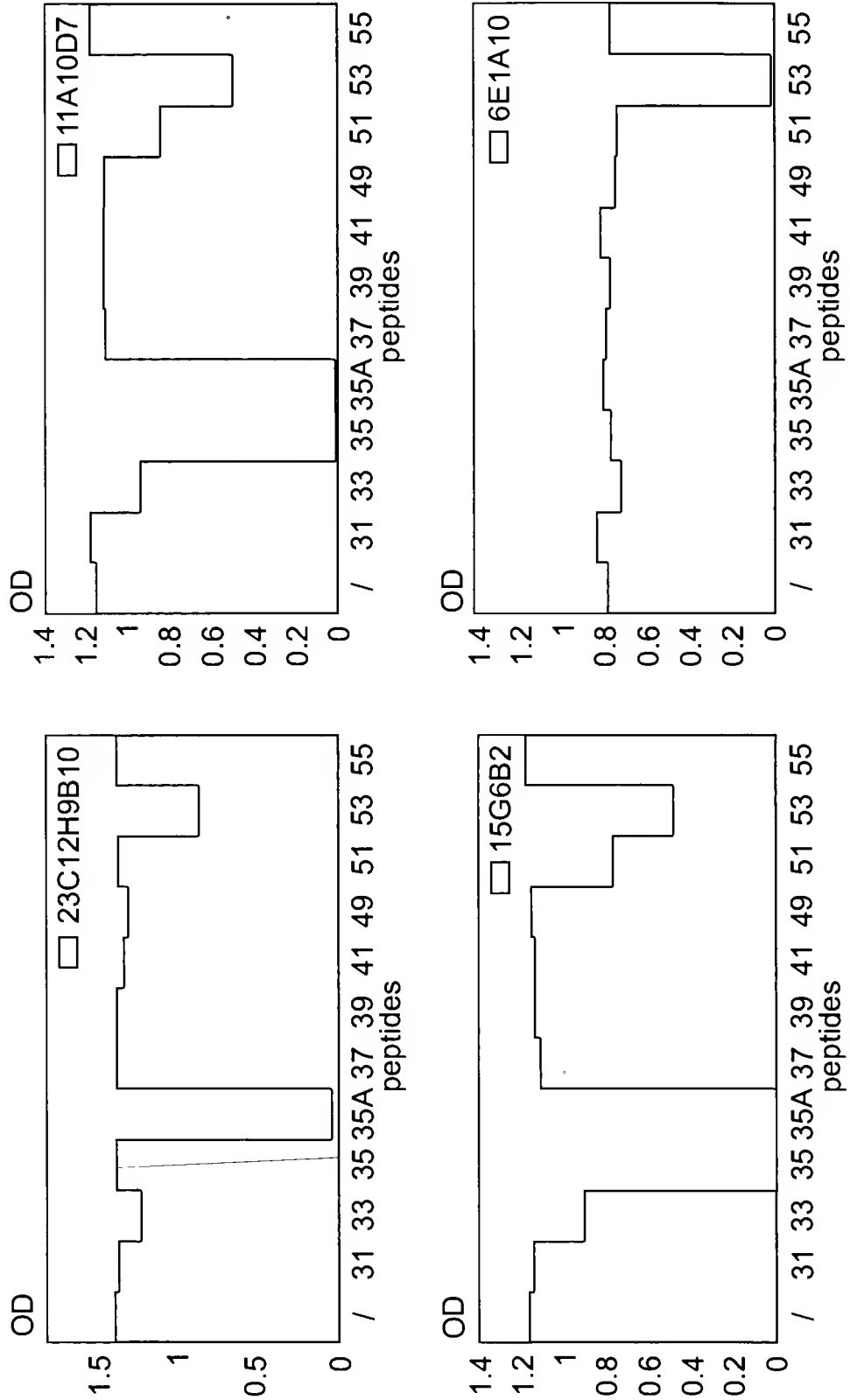


Figure 14

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**Anti-E1 (epitope 1) levels in NON-RESPONDERS to IFN treatment**

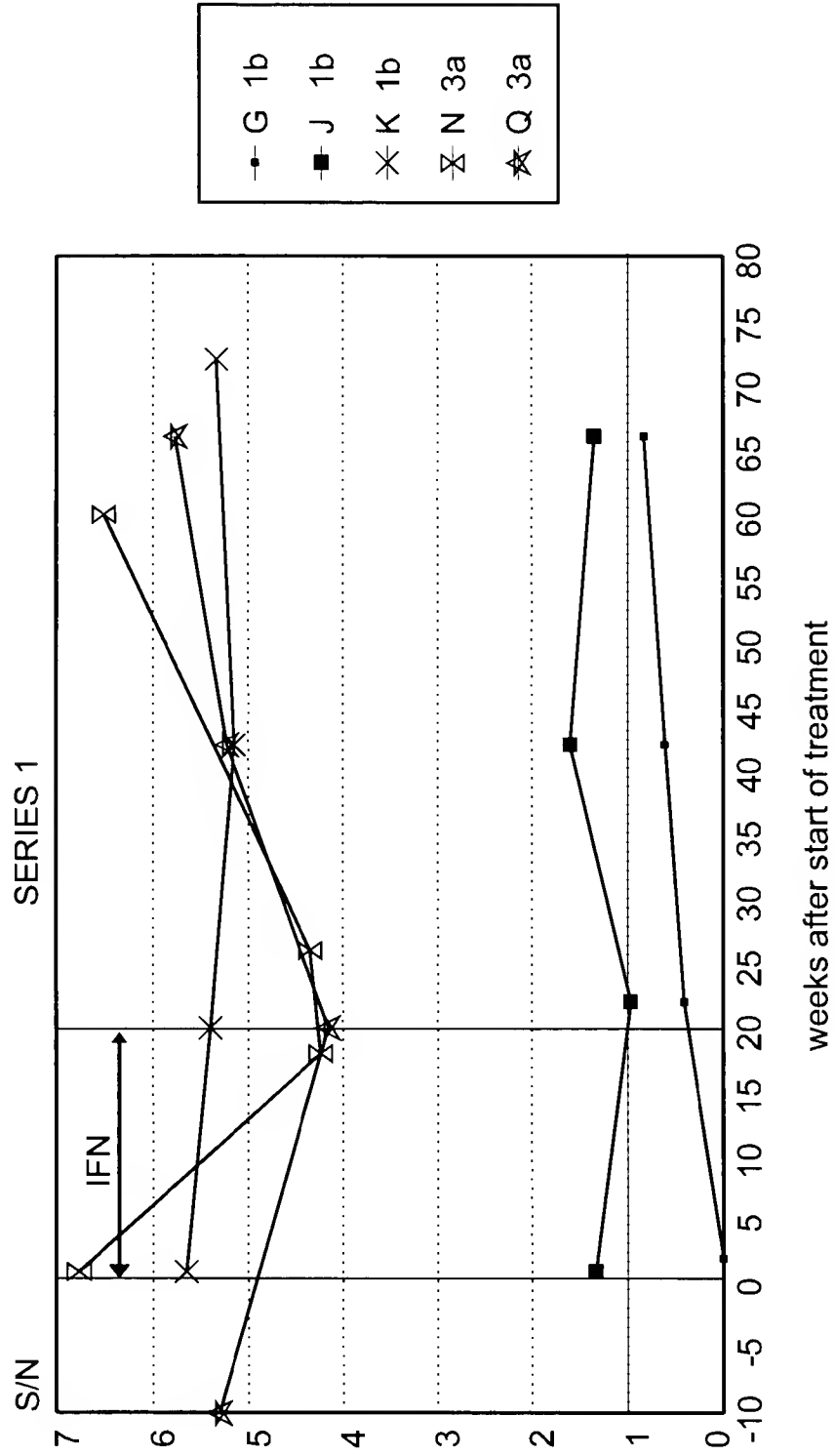


Figure 15

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# Anti-E1 (epitope 1) levels in RESPONDERS to IFN treatment

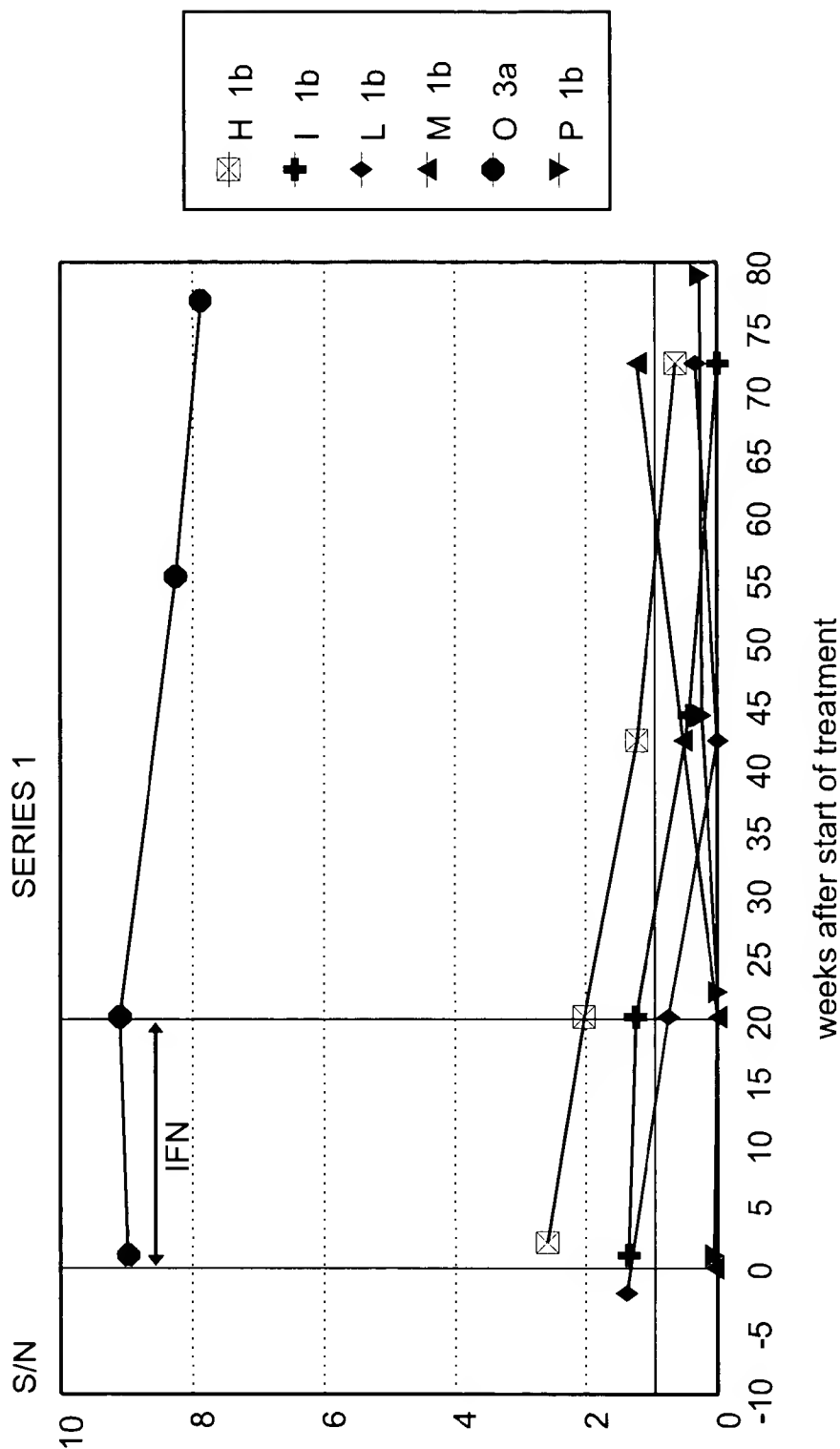


Figure 16



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# Anti-E1 (epitope 2) levels in NON-RESPONDERS to IFN treatment

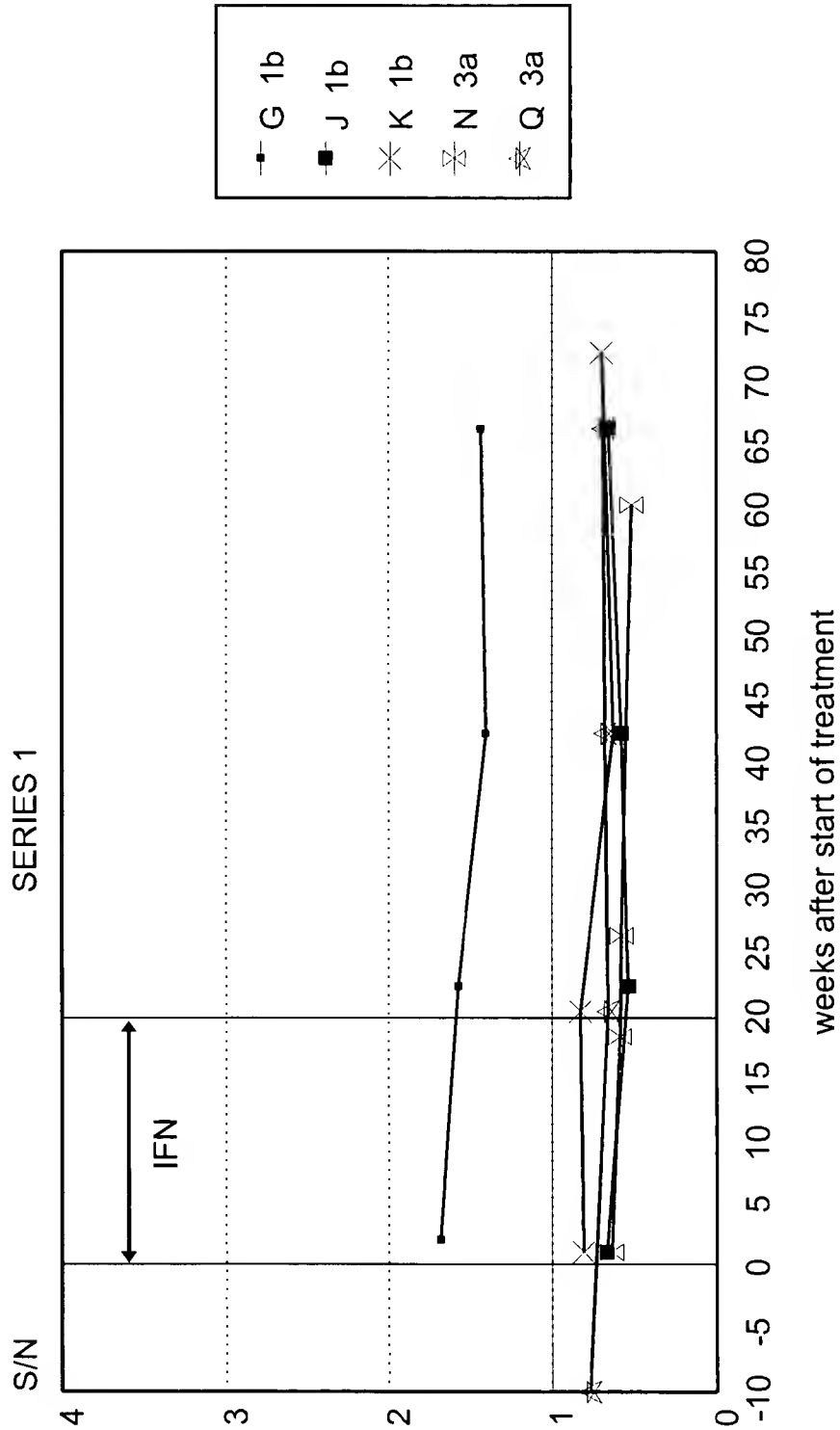


Figure 17

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Anti-E1 (epitope 2) levels in RESPONDERS to IFN treatment

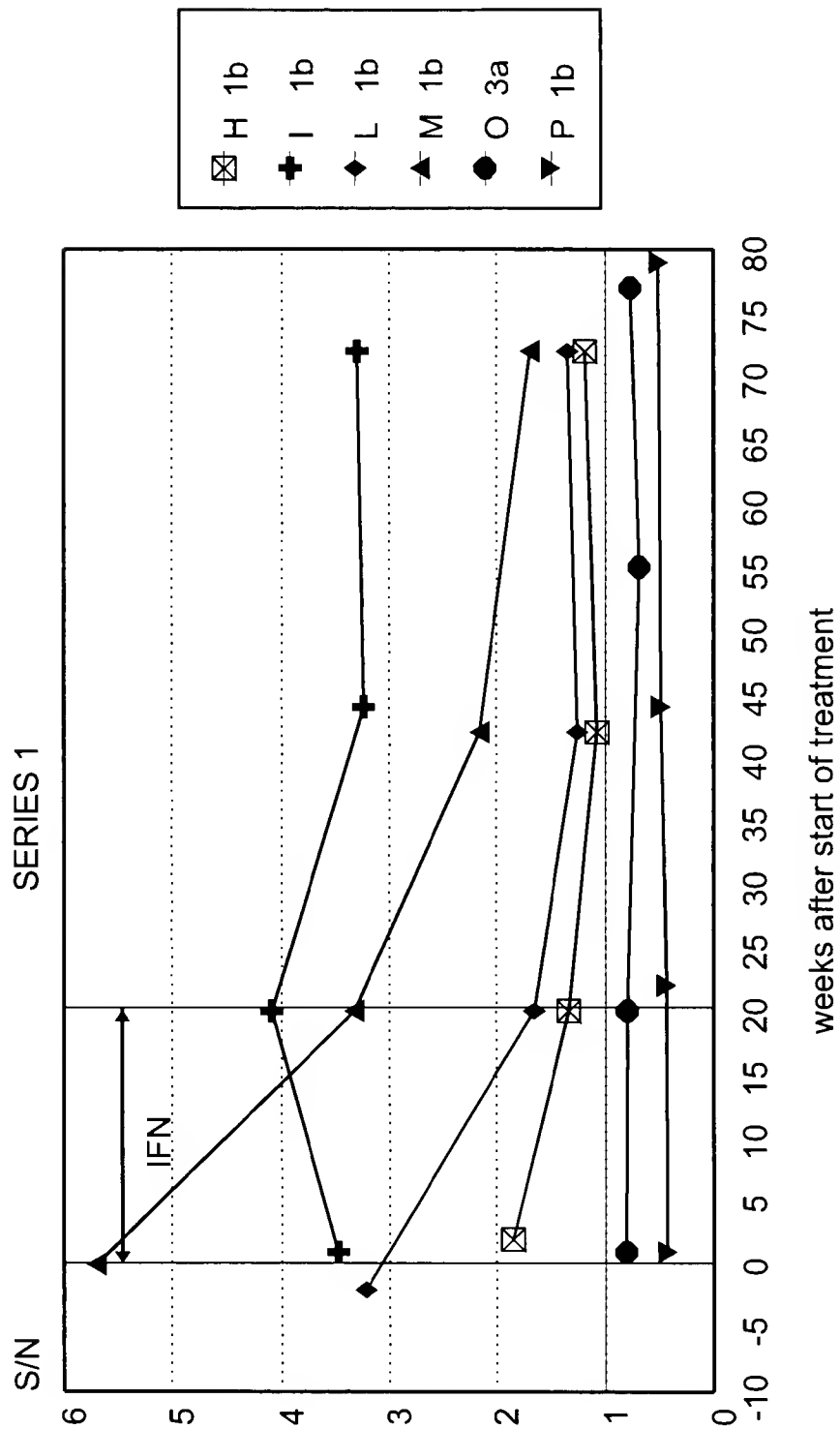


Figure 18

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# Competition of reactivity of anti-E2 Mabs with peptides

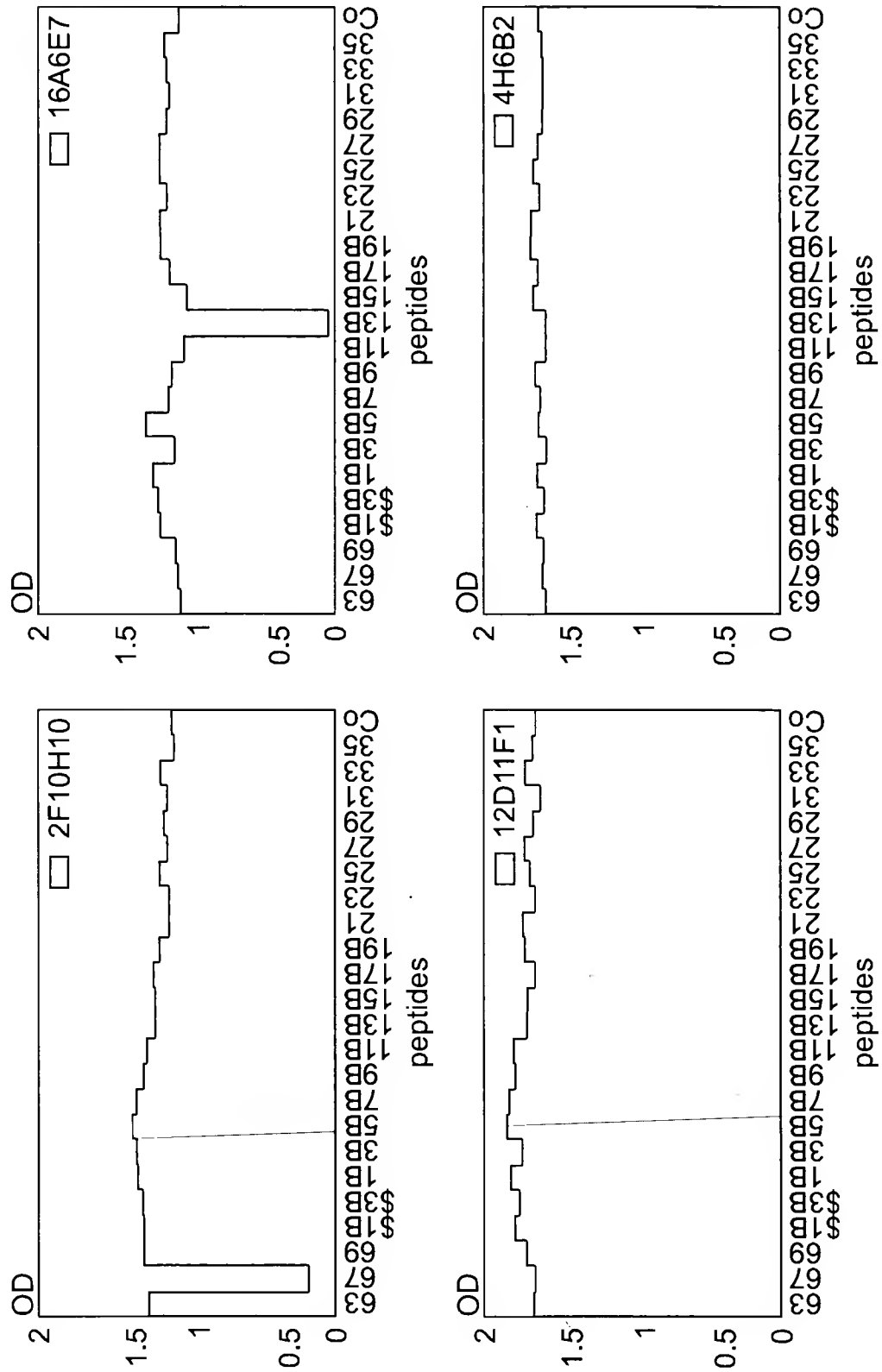


Figure 19



## Human anti-E2 reactivity competed with peptides

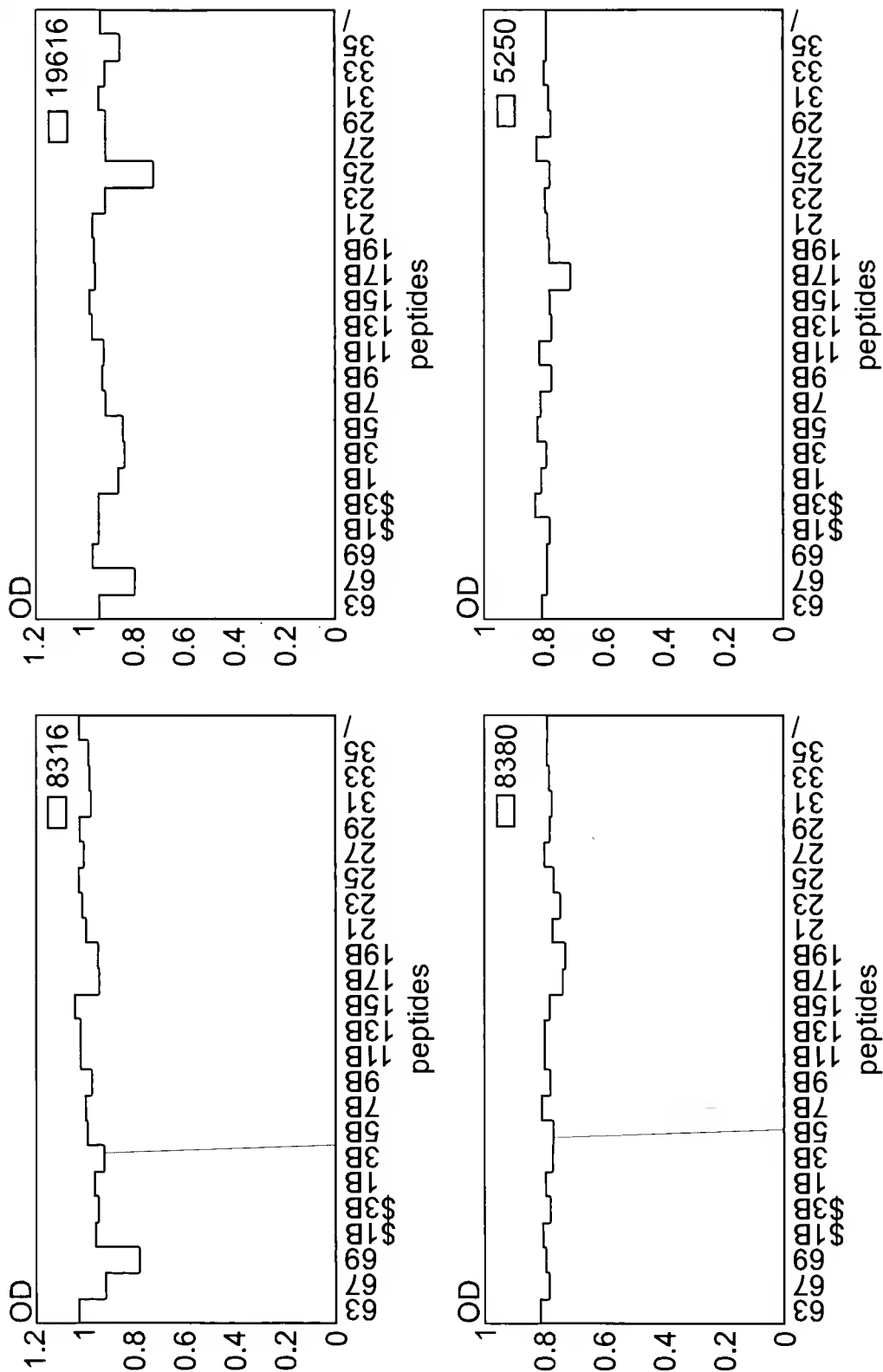


Figure 20

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GGCATGCAAGCTTAATTAATT 3' (SEQ ID NO 1)  
 3' ACGTCCGTACGTTTCAATTAATTCGA 5' (SEQ ID NO 94)

5' CCGGGGAGGCCTGCACGTGATCGAGGGCAGACACCATCACCACCATCACTAATAGTTA  
 ATTAAGTCA 3' (SEQ ID NO 2)  
 3' CCTCCGGACGTGCACTAGCTCCCGTCTGTGGTAGTGGTGGTAGTGATTATCAATTAAT  
 TG 5' (SEQ ID NO 95)

SEQ ID NO 3 (HCC19A)  
 ATGCCCGGTTGCTCTTTCTCTATCTTCCTCTTGGCTTTACTGTCCTGTCTGACCATTCCA  
 GCTTCCGCTTATGAGGTGCGCAACGTGTCCGGGATGTACCATGTACGAACGACTGCTCC  
 AACTCAAGCATTGTGTATGAGGCAGCGGACATGATCATGCACACCCCGGGTGCGTGCC  
 TGCGTTCGGGAGAACAACCTTCCCGCTGCTGGGTAGCGCTCACCCCCACGCTCGCAGCT  
 AGGAACGCCAGCGTCCCCACCACGACAATACGACGCCACGTGATTTGCTCGTTGGGGCG  
 GCTGCTCTCTGTTCCGCTATGTACGTGGGGGATCTCTGCGGATCTGTCTTCCTCGTCTCC  
 CAGCTGTTACCATCTCGCCTCGCCGGCATGAGACGGTGCAGGACTGCAATTGCTCAATC  
 TATCCCGGCCACATAACAGGTCACCGTATGGCTTGGGATATGATGATGAACTGGTCGCT  
 ACAACGGCCCTGGTGGTATCGCAGCTGCTCCGGATCCCACAAGCTGTCGTGGACATGGTG  
 GCGGGGGCCCATTTGGGGAGTCCTGGCGGGCCTCGCCTACTATTCCATGGTGGGGAACCTGG  
 GCTAAGGTTTTGATTGTGATGCTACTCTTTGCTCTCTAATAG

SEQ ID NO 5 (HCC110A)  
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 CTGGAGGACGGCGTGAACATGCAACAGGGAATTTGCCCGTTGCTCTTTCTCTATCTTC  
 CTCTTGGCTTTGCTGTCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCGCAACGTG  
 TCCGGGATGTACCATGTACGAACGACTGCTCCAACCTCAAGCATTGTGTATGAGGCAGCG  
 GACATGATCATGCACACCCCGGGTGCGTGCCCTGCGTTGGGAGAACAACCTTCCCGC  
 TGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCGTCCCCACCACGACA  
 ATACGACGCCACGTGATTTGCTCGTTGGGGCGGCTGCTTTCTGTTCCGCTATGTACGTG  
 GGGGACCTCTGCGGATCTGTCTTCCTCGTCTCCAGCTGTTACCATCTCGCCTCGCCGG  
 CATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGTACCGT  
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 CTCGGGATCCCACAAGCTGTGCTGGACATGGTGGCGGGGGCCCATTTGGGGAGTCCTGGCG  
 GGTCTCGCCTACTATTCCATGGTGGGGAACCTGGGCTAAGGTTTTGATTGTGATGCTACTC  
 TTTGCTCCCTAATAG

SEQ ID NO 7 (HCC111A)

Figure 21A



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ATGTTGGGTAAGGTCATCGATACCCTTACGTGCGGCTTCGCCGACCTCATGGGGTACATT  
CCGCTCGTCGGCGCCCCCTAGGGGGTGCTGCCAGAGCCCTGGCGCATGGCGTCCGGGTT  
CTGGAAGACGGCGTGAACATATGCAACAGGGAATTTGCCTGGTTGCTCTTTCTCTATCTTC  
CTCTTGGCTTTACTGTCTGTCTGACCATTCCAGCTTCCGCTTATGAGGTGCGCAACGTG  
TCCGGGATGTACCATGTACGAACGACTGCTCCAACCAAGCATTGTGTATGAGGCAGCG  
GACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCCGGGAGAACAACCTCTTCCCGC  
TGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCGTCCCCACTACGACA  
ATACGACGCCACGTGCGATTTGCTCGTTGGGGCGGCTGCTTTCTGTTCCGCTATGTACGTG  
GGGGATCTCTGCGGATCTGTCTTCCCTCGTCTCCAGCTGTTACCATCTCGCCTCGCCGG  
CATGAGACGGTGACGAGTCAATTGCTCAATCTATCCCGGCCACATAACAGGTACCGT  
ATGGCTTGGGATATGATGATGAACTGGTAATAG

SEQ ID NO 9 (HCC112A)

ATGCCCCGTTGCTCTTTCTCTATCTTCCTCTTGGCCCTGCTGTCCTGTCTGACCATACCA  
GCTTCCGCTTATGAAGTGCGCAACGTGTCCGGGGTGACCATGTCACGAACGACTGCTCC  
AACTCAAGCATAGTGTATGAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCC  
TGCGTTCCGGAGGGCAACTCCTCCCGTTGCTGGGTGGCGCTCACTCCACGCTCGCGGCC  
AGGAACGCCAGCGTCCCCACAACGACAATACGACGCCACGTGCGATTTGCTCGTTGGGGCT  
GCTGCTTTCTGTTCCGCTATGTACGTGGGGGATCTCTGCGGATCTGTTTTCTTTGTTTCC  
CAGCTGTTACCTTCTCACCTCGCCGGCATCAAACAGTACAGGACTGCAACTGCTCAATC  
TATCCCGGCCATGTATCAGGTACCCGCATGGCTTGGGATATGATGATGAACTGGTCCTAA  
TAG

SEQ ID NO 11 (HCC113A)

ATGTCCGTTGCTCTTTCTCTATCTTCCTCTTGGCCCTGCTGTCCTGTCTGACCATACCA  
GCTTCCGCTTATGAAGTGCGCAACGTGTCCGGGGTGACCATGTCACGAACGACTGCTCC  
AACTCAAGCATAGTGTATGAGGCAGCGGACATGATCATGCACACCCCCGGGTGCGTGCCC  
TGCGTTCCGGAGGGCAACTCCTCCCGTTGCTGGGTGGCGCTCACTCCACGCTCGCGGCC  
AGGAACGCCAGCGTCCCCACAACGACAATACGACGCCACGTGCGATTTGCTCGTTGGGGCT  
GCTGCTTTCTGTTCCGCTATGTACGTGGGGGATCTCTGCGGATCTGTTTTCTTTGTTTCC  
CAGCTGTTACCTTCTCACCTCGCCGGCATCAAACAGTACAGGACTGCAACTGCTCAATC  
TATCCCGGCCATGTATCAGGTACCCGCATGGCTTGGGATATGATGATGAACTGGTAATAG

SEQ ID NO 13 (HCC117A)

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CTGGAAGACGGCGTGAACATATGCAACAGGGAATTTGCCTGGTTGCTCTTTCTCTATCTTC  
CTCTTGGCTTTACTGTCTGTCTAACCATTCCAGCTTCCGCTTACGAGGTGCGCAACGTG  
TCCGGGATGTACCATGTACGAACGACTGCTCCAACCAAGCATTGTGTATGAGGCAGCG  
GACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCCGGGAGAACAACCTCTTCCCGC  
TGCTGGGTAGCGCTCACCCCCACGCTCGCGGCTAGGAACGCCAGCATCCCCACTACAACA

Figure 21B

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ATACGACGCCACGTCGATTTGCTCGTTGGGGCGGCTGCTTTCTGTTCCGCTATGTACGTG  
GGGGATCTCTGCGGATCTGTCTTCCTCGTCTCCAGCTGTTACCATCTCGCCTCGCCGG  
CATGAGACGGTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGTACCGT  
ATGGCTTGGGATATGATGATGAACTGGTACTAATAG

SEQ ID NO 15 (HCP51)

ATGCCCCGTTGCTCTTTCTCTATCTT

SEQ ID NO 16 (HCP52)

ATGTTGGGTAAGGTCATCGATACCCT

SEQ ID NO 17 (HCP53)

CTATTAGGACCAGTTCATCATCATATCCCA

SEQ ID NO 18 (HCP54)

CTATTACCAGTTCATCATCATATCCCA

SEQ ID NO 19 (HCP107)

ATACGACGCCACGTCGATTCCAGCTGTTACCATC

SEQ ID NO 20 (HCP108)

GATGGTGAACAGCTGGGAATCGACGTGGCGTCGTAT

SEQ ID NO 21 (HCC137)

ATGTTGGGTAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACATT  
CCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCGGGTT  
CTGGAGGACGGCGTGAACATATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCTATCTTC  
CTCTTGGCTTTGCTGTCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCGCAACGTG  
TCCGGGATGTACCATGTCACGAACGACTGCTCCAACCTCAAGCATTGTGTATGAGGCAGCG  
GACATGATCATGCACACCCCGGGTGCGTGCCCTGCGTTCGGGAGAACAACCTTTCCCGC  
TGCTGGGTAGCGCTCACCCCAACGCTCGCAGCTAGGAACGCCAGCGTCCCCACCACGACA  
ATACGACGCCACGTCGATTCCAGCTGTTACCATCTCGCCTCGCCGGCATGAGACGGTG  
CAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGTACCGTATGGCTTGGGAT  
ATGATGATGAACTGGTCGCCTACAACGGCCCTGGTGGTATCGCAGCTGCTCCGGATCCCA  
CAAGCTGTGCTGGACATGGTGGCGGGGGGCCATTGGGGAGTCCTGGCGGGTCTCGCCTAC  
TATTCCATGGTGGGGAACCTGGGCTAAGGTTTTGATTGTGATGCTACTCTTTGCTCCCTAA  
TAG

SEQ ID NO 23 (HCC138)

ATGTTGGGTAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACATT  
CCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCGGGTT  
CTGGAGGACGGCGTGAACATATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCTATCTTC  
CTCTTGGCTTTGCTGTCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCGCAACGTG  
TCCGGGATGTACCATGTCACGAACGACTGCTCCAACCTCAAGCATTGTGTATGAGGCAGCG

Figure 21C



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GACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCGGGAGAACAACCTCTTCCCGC  
 TGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCGTCCCCACCACGACA  
 ATACGACGCCACGTCGATTCCCAGCTGTTACCATCTCGCCTCGCCGGCATGAGACGGTG  
 CAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGTACCGTATGGCTTGGGAT  
 ATGATGATGAACTGGTAATAG

SEQ ID NO 25 (HCC139)

ATGTTGGGTAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACATT  
 CCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCGGGTT  
 CTGGAGGACGGCGTGAACATATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCTATCTTC  
 CTCTTGGCTTTGCTGTCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCACAACGTG  
 TCCGGGATGTACCATGTACGAACGACTGCTCCAACCTCAAGCATTGTGTATGAGGCAGCG  
 GACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCGGGAGAACAACCTCTTCCCGC  
 TGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCGTCCCCACCACGACA  
 ATACGACGCCACGTCGATTCCCAGCTGTTACCATCTCGCCTCGCCGGCATGAGACGGTG  
 CAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGTACCGTATGGCTTGGGAT  
 ATGATGATGAACTGGTGCCTACAACGGCCCTGGTGGTATCGCAGCTGCTCCGGATCCTC  
 TAATAG

SEQ ID NO 27 (HCC140)

ATGTTGGGTAAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACATT  
 CCGCTCGTCGGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCGGGTT  
 CTGGAGGACGGCGTGAACATATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCTATCTTC  
 CTCTTGGCTTTGCTGTCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCACAACGTG  
 TCCGGGATGTACCATGTACGAACGACTGCTCCAACCTCAAGCATTGTGTATGAGGCAGCG  
 GACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCGGGAGAACAACCTCTTCCCGC  
 TGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCGTCCCCACCACGACA  
 ATACGACGCCACGTCGATTCCCAGCTGTTACCATCTCGCCTCGCCGGCATGAGACGGTG  
 CAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGTACCGTATGGCTTGGGAT  
 ATGATGATGAACTGGTGCCTACAACGGCCCTGGTGGTATCGCAGCTGCTCCGGATCGTG  
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SEQ ID NO 29 (HCC162)

ATGGGTAAGGTCATCGATACCCTTACGTGCGGATTCGCCGATCTCATGGGGTACATCCCG  
 CTCGTCGGCGCTCCCGTAGGAGGCGTCGAAGAGCCCTTGCGCATGGCGTGAGGGCCCTT  
 GAAGACGGGATAAATTTGCAACAGGGAATTTGCCCGGTTGCTCCTTTTCTATTTTCTT  
 CTCGCTCTGTTCTTGTCTTAATTCATCCAGCAGCTAGTCTAGAGTGGCGGAATACGTCT  
 GGCCTCTATGTCCTTACCAACGACTGTTCCAATAGCAGTATTGTGTACGAGGCCGATGAC  
 GTTATTCTGCACACACCCGGCTGCATACCTTGTGTCCAGGACGGCAATACATCCACGTGC  
 TGGACCCAGTGACACCTACAGTGGCAGTCAAGTACGTCCGAGCAACCACCGCTTCGATA  
 CGCAGTCATGTGGACCTATTAGTGGGCGCGGCCACGATGTGCTCTGCGCTCTACGTGGGT  
 GACATGTGTGGGGCTGTCTTCTCGTGGGACAAGCCTTCACGTTACAGACCTCGTCGCCAT

Figure 21D





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CAAACGGTCCAGACCTGTAAGTCTCGCTGTACCCAGGCCATCTTTCAGGACATCGAATG  
GCTTGGGATATGATGATGAACTGGTAATAG

SEQ ID NO 31 (HCC163)

ATGGGTAAGGTCATCGATACCCTAACGTGCGGATTCGCCGATCTCATGGGGTATATCCCG  
CTCGTAGGCGGCCCATTTGGGGGCGTCGCAAGGGCTCTCGCACACGGTGTGAGGGTCCTT  
GAGGACGGGGTAAACTATGCAACAGGGAATTTACCCGGTTGCTCTTTCTCTATCTTTATT  
CTTGCTCTTCTCTCGTGTCTGACCGTTCCGGCCTCTGCAGTTCCTTACCGAAATGCCTCT  
GGGATTTATCATGTTACCAATGATTGCCAAACTCTTCCATAGTCTATGAGGCAGATAAC  
CTGATCCTACACGCACCTGGTTGCGTGCCTTGTGTCTATGACAGGTAATGTGAGTAGATGC  
TGGGTCCAAATTACCCCTACACTGTCAGCCCCGAGCCTCGGAGCAGTCACGGCTCCTCTT  
CGGAGAGCCGTTGACTACCTAGCGGGAGGGGCTGCCCTCTGCTCCGCGTTATACGTAGGA  
GACGCGTGTGGGGCACTATTCTTGGTAGGCCAAATGTTACCTATAGGCCTCGCCAGCAC  
GCTACGGTGCAGAACTGCAACTGTTCCATTTACAGTGGCCATGTTACCGGCCACCGGATG  
GCATGGGATATGATGATGAACTGGTAATAG

SEQ ID NO 33 (HCP109)

TGGGATATGATGATGAACTGGTC

SEQ ID NO 34 (HCP72)

CTATTATGGTGGTAAKGCCARCARGAGCAGGAG

SEQ ID NO 35 (HCCL22A)

TGGGATATGATGATGAACTGGTGCCTACAACGGCCCTGGTGGTATCGCAGCTGCTCCGG  
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GCCTACTATTCCATGGTGGGGAAGTGGGCTAAGTTTTGGTTGTGATGCTACTCTTTGCC  
GGCGTCGACGGGCATACCCGCGTGTGAGGAGGGGAGCAGCCTCCGATACCAGGGGCCTT  
GTGTCCCTCTTTAGCCCCGGGTGCGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGT  
TGGCACATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGCC  
GCACTATTCTACAAACACAAATTCAACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTGT  
CGCTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCTCACTTACACTGAGCCTAACAGC  
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TCTCAGGTGTGCGGTCCAGTGTATTGCTTCACCCCGAGCCCTGTTGTGGTGGGGACGACC  
GATCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAAGCACTCGGATGTGCTGATTCTC  
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ACCTGCCCCACTGACTGTTTTCGGAAGCACCCCGAGGCCACCTACGCCAGATGCGGTTCT  
GGGCCCTGGCTGACACCTAGGTGTATGGTTCATTACCCATATAGGCTCTGGCACTACCCC  
TGCACTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGGGGGCGTGGAGCACAGG  
TTCGAAGCCGCATGCAATTGGACTCGAGGAGAGCGTTGTGACTTGGAGGACAGGGATAGA  
TCAGAGCTTAGCCCCGCTGCTGCTGTCTACAACAGAGTGGCAGATACTGCCCTGTTCTTC

Figure 21E



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ACCACCCTGCCGGCCCTATCCACCGGCCTGATCCACCTCCATCAGAACATCGTGGACGTG  
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 CTGATAGCTCAAGCTGAGGCCGCCTTAGAGAACCTGGTGGTCCTCAATGCGGCGGCCGTG  
 GCCGGGGCGCATGGCACTCTTCTCCTTGTGTTCTTCTGTGCTGCCTGGTACATCAAG  
 GGCAGGCTGGTCCCTGGTGGGCATACGCCTTCTATGGCGTGTGGCCGCTGCTCCTGCTT  
 CTGCTGGCCTTACCACCACGAGCTTATGCCTAGTAA

SEQ ID NO 37 (HCC141)

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 CGCCTACTATTCCATGGTGGGGAACCTGGGCTAAGGTTTTGGTTGTGATGCTACTCTTTGC  
 CGGCGTCGACGGGCATACCCGCGTGTGAGGAGGGGCAGCAGCCTCCGATACCAGGGGCCT  
 TGTGTCCCTCTTTAGCCCCGGGTGCGGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAG  
 TTGGCACATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGC  
 CGCACTATTCTACAAACACAAATTCAACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTG  
 TCGCTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTTACACTGAGCCTAACAG  
 CTCGGACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCGC  
 GTCTCAGGTGTGCGGTCCAGTGTATTGCTTCACCCGAGCCCTGTTGTGGTGGGGACGAC  
 CGATCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTGATTCT  
 CAACAACACGCGGCCGCCGCGAGGCAACTGGTTCGGCTGTACATGGATGAATGGCACTGG  
 GTTCACCAAGACGTGTGGGGGCCCCCGTGCAACATCGGGGGGGCCGGCAACAACACCTT  
 GACCTGCCCCACTGACTGTTTTCGGAAGCACCCCGAGGCCACCTACGCCAGATGCGGTTCT  
 TGGGGCCTGGCTGACACCTAGGTGTATGGTTTCATTACCCATATAGGCTCTGGCACTACCC  
 CTGCACTGTCAACTTCACCATCTTCAAGTTAGGATGTACGTGGGGGGCGTGGAGCACAG  
 GTTCGAAGCCGCATGCAATTGGACTCGAGGAGAGCGTTGTGACTTGGAGGACAGGGATAG  
 ATCAGAGCTTAGCCCGCTGCTGCTGTCTACAACAGAGTGGCAGAGTGGCAGAGCTTAATT  
 AATTAG

SEQ ID NO 39 (HCC142)

GATCCCACAAGCTGTCTGGACATGGTGGCGGGGGCCATTGGGGAGTCCTGGCGGGCCT  
 CGCCTACTATTCCATGGTGGGGAACCTGGGCTAAGGTTTTGGTTGTGATGCTACTCTTTGC  
 CGGCGTCGACGGGCATACCCGCGTGTGAGGAGGGGCAGCAGCCTCCGATACCAGGGGCCT  
 TGTGTCCCTCTTTAGCCCCGGGTGCGGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAG  
 TTGGCACATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGC  
 CGCACTATTCTACAAACACAAATTCAACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTG  
 TCGCTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTTACACTGAGCCTAACAG  
 CTCGGACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCGC  
 GTCTCAGGTGTGCGGTCCAGTGTATTGCTTCACCCGAGCCCTGTTGTGGTGGGGACGAC  
 CGATCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTGATTCT  
 CAACAACACGCGGCCGCCGCGAGGCAACTGGTTCGGCTGTACATGGATGAATGGCACTGG  
 GTTCACCAAGACGTGTGGGGGCCCCCGTGCAACATCGGGGGGGCCGGCAACAACACCTT

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GACCTGCCCCACTGACTGTTTTTCGGAAGCACCCCGAGGCCACCTACGCCAGATGCGGTTCTGGGCCCTGGCTGACACCTAGGTGTATGGTTCATTACCCATATAGGCTCTGGCACTACCCCTGCACTGTCAACTTCACCATCTTCAAGTTAGGATGTACGTGGGGGGCGTGGAGCACAGGTTCGAAGCCGCATGCAATTGGA CTGAGGAGAGCGTTGTGACTTGGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTGCTGTCTACAACAGGTGATCGAGGGCAGACACCATCACCACCATCACTAATAG

SEQ ID NO 41 (HCC143)

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SEQ ID NO 43 (HCC144)

ATGGTGGGGAAGTGGGCTAAGGTTTTGGTTGTGATGCTACTCTTTGCCGGCGTCGACGGGCATACCCGCGTGTGTCAGGAGGGGCAGCAGCCTCCGATACCAGGGGCCTTGTGTCCCTCTTTAGCCCCGGGTGCGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCACATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGCCGCACTATTCTACAAACACAAATTCAACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTGTGCTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCTCACTTACACTGAGCCTAACAGCTCGGACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCGCGTCTCAGGTGTGCGGTCCAGTGTATTGCTTCACCCCGAGCCCTGTTGTGGTGGGGACGACCGATCGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTGATTCTCAACAACACGCGGCCGCCGCGAGGCAACTGGTTCGGCTGTACATGGATGAATGGCACTGGGTTCCACCAAGACGTGTGGGGGGCCCCCGTGCAACATCGGGGGGGCCGGCAACAACACCTTGACCTGCCCCACTGACTGTTTTTCGGAAGCACCCCGAGGCCACCTACGCCAGATGCGGTTCTGGGCCCTGGCTGACACCTAGGTGTATGGTTCATTACCCATATAGGCTCTGGCACTACCCCTGCACTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGGGGGCGTGGAGCACAGGTTCTGAAGCCGCA TGCAATTGGA CTGAGGAGAGCGTTGTGACTTGGAGGACAGGGATAGATCAGAGCTTAGC

Figure 21G



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CGCTGCTGCTGTCTACAACAGGTGATCGAGGGCAGACACCATCACCACCATCACTAATA

SEQ ID NO 45 (HCCL64)

ATGGTGGCGGGGGCCCATTGGGGAGTCCTGGCGGGCCTCGCCTACTATTCCATGGTGGGG  
 AACTGGGCTAAGGTTTTGGTTGTGATGCTACTCTTTGCCGGCGTCGACGGGCATACCCGC  
 GTGTCAGGAGGGGCAGCAGCCTCCGATACCAGGGGCCCTTGTGTCCCTCTTTAGCCCCGGG  
 TCGGCTCAGAAAATCCAGCTCGTAAACACCAACGGCAGTTGGCACATCAACAGGACTGCC  
 CTGAAC TGCAACGACTCCCTCCAAACAGGGTTCTTTGCCGCACTATTCTACAAACACAAA  
 TTCAACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTGTGCTCCATCGACAAGTTGCT  
 CAGGGGTGGGGTCCCCTCACTTACACTGAGCCTAACAGCTCGGACCAGAGGGCCCTACTGC  
 TGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCGCGTCTCAGGTGTGCGGTCCAGTG  
 TATTGCTTACCCCCGAGCCCTGTTGTGGTGGGGACGACCGATCGGTTTGGTGTCCCCACG  
 TATAACTGGGGGGCGAACGACTCGGATGTGCTGATTCTCAACAACACGGGCCCGCCGCGA  
 GGCAACTGGTTGCGCTGTACATGGATGAATGGCACTGGGTTACCAAGACGTGTGGGGGC  
 CCCCCGTGCAACATCGGGGGGGCCGGCAACAACACCTTGACCTGCCCCACTGACTGTTTT  
 CGGAAGCACCCCGAGGCCACCTACGCCAGATGCGGTTCTGGGCCCTGGCTGACACCTAGG  
 TGTATGGTTCACTACCCATATAGGCTCTGGCACTACCCCTGCACTGTCAACTTCACCATC  
 TTCAAGGTTAGGATGTACGTGGGGGGCGTGGAGCACAGGTTCGAAGCCGCATGCAATTGG  
 ACTCGAGGAGAGCGTTGTGACTTGGAGGACAGGGATAGATCAGAGCTTAGCCCGCTGCTG  
 CTGTCTACAACAGAGTGGCAGATACTGCCCTGTTCTTCCACCACCCTGCCGGCCCTATCC  
 ACCGGCCTGATCCACCTCCATCAGAACATCGTGGACGTGCAATACCTGTACGGTGTAGGG  
 TCGGCGGTTGTCTCCCTTGTCTCATCAATGGGAGTATGTCCTGTTGCTCTTCTCTCTG  
 GCAGACGCGCGCATCTGCGCCTGCTTATGGATGATGCTGCTGATAGCTCAAGCTGAGGCC  
 GCCTTAGAGAACCTGGTGGTCTCAATGCGGCGGCGTGGCCGGGGCGCATGGCACTCTT  
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 GCTTATGCCTAGTAA

SEQ ID NO 47 (HCC165)

AATTTGGGTAAGGTCATCGATACCCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACATT  
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 CTGGAGGACGGCGTGAACATATGCAACAGGGAATTTGCCCGGTTGCTCTTTCTCTATCTTC  
 CTCTTGGCTTTGCTGTCTGTCTGACCGTTCCAGCTTCCGCTTATGAAGTGCGCAACGTG  
 TCCGGGATGTACCATGTCACGAACGACTGCTCCAACCTCAAGCATTGTGTATGAGGCAGCG  
 GACATGATCATGCACACCCCCGGGTGCGTGCCCTGCGTTCCGGGAGAACAACCTTTCCCGC  
 TGCTGGGTAGCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCGTCCCCACCACGACA  
 ATACGACGCCACGTGATTTGCTCGTTGGGGCGGCTGCTTTCTGTTCCGCTATGTACGTG  
 GGGGACCTCTGCGGATCTGTCTTCTCGTCTCCAGCTGTTACCATCTCGCCTCGCCGG  
 CATGAGACGGTGACGAGTGAATTGCTCAATCTATCCCGGCCACATAACGGGTACCCGT  
 ATGGCTTGGGATATGATGATGAACTGGTCGCTACAACGGGCCCTGGTGGTATCGCAGCTG  
 CTCGGGATCCCACAAGCTGTGCTGGACATGGTGGCGGGGGCCCATTTGGGGAGTCCTGGCG

Figure 21H



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GGCCTCGCCTACTATTCCATGGTGGGGAAGTGGGCTAAGGTTTTGGTTGTGATGCTACTC  
 TTTGCCGGCGTCGACGGGCATACCCGCGTGTGAGGAGGGGCAGC AGCCTCCGATACCAG  
 GGGCCTTGTGTCCCTCTTTAGCCCCGGGTGCGCTCAGAAAATCCAGCTCGTAAACACCAA  
 CGGCAGTTGGCACATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTT  
 CTTTGCCGCACTATTCTACAAACACAAATTCAACTCGTCTGGATGCCAGAGCGCTTGGC  
 CAGCTGTCGCTCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCCTCACTTACACTGAGCC  
 TAACAGCTCGGACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGT  
 ACCCGCGTCTCAGGTGTGCGGTCCAGTGTATTGCTTCACCCGAGCCCTGTTGTGGTGGG  
 GACGACCGATCGGTTTTGGTGTCCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCT  
 GATTCTCAACAACACGCGGCCGCCGCGAGGCAACTGGTTCGGCTGTACATGGATGAATGG  
 CACTGGGTTCACCAAGACGTGTGGGGGCCCCCGTGAACATCGGGGGGGCCGGCAACAA  
 CACCTTGACCTGCCCCACTGACTGTTTTCGGAAGCACCCCGAGGCCACCTACGCCAGATG  
 CGGTTCTGGGCCCTGGCTGACACCTAGGTGTATGGTTCATTACCCATATAGGCTCTGGCA  
 CTACCCCTGCACTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGGGGGCGTGGA  
 GCACAGGTTGGAAGCCGCATGCAATTGGAAGTTCGAGGAGAGCGTTGTGACTTGGAGGACAG  
 GGATAGATCAGAGCTTAGCCCGCTGCTGCTGTCTACAACAGAGTGGCAGATACTGCCCTG  
 TTCCTTCACCACCCTGCCGGCCCTATCCACCGGCCTGATCCACCTCCATCAGAACATCGT  
 GGACGTGCAATACCTGTACGGTGTAGGGTGGCGGTTGTCTCCCTTGTATCAAATGGGA  
 GTATGTCCTGTTGCTCTTCTTCTCCTGGCAGACGCGCGCATCTGCGCCTGCTTATGGAT  
 GATGCTGCTGATAGCTCAAGCTGAGGCCGCCTTAGAGAACCTGGTGGTCTCAATGCGGC  
 GGCGGTGGCCGGGGCGCATGGCACTCTTCTTCTTCTGTTCTTCTGTGCTGCCTGGTA  
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 CCTGCTTCTGCTGGCCTTACCACCAGAGCTTATGCCTAGTAAGCTT

SEQ ID NO 49 (HCC166)

ATGAGCACGAATCCTAAACCTCAAAGAAAAACCAAACGTAACACCAACCGCCGCCACAG  
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 GGCCCCAGGTTGGGTGTGCGCGCGACTAGGAAGACTTCCGAGCGGTGCAACCTCGTGGG  
 AGGCGACAACCTATCCCCAAGGCTCGCCGACCCGAGGGTAGGGCCTGGGCTCAGCCGGG  
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 CGCGGCTCTCGGCCTAGTTGGGGCCCTACAGACCCCGGCGTAGGTGCGTAATTTGGGT  
 AAGGTCATCGATACCCTTACATGCGGCTTCGCCGACCTCGTGGGGTACATTCCGCTCGTC  
 GGCGCCCCCTAGGGGGCGCTGCCAGGGCCCTGGCGCATGGCGTCCGGGTTCTGGAGGAC  
 GGCGTGAACATATGCAACAGGGAATTTGCCGGTTGCTCTTCTCTATCTTCTTCTGGCT  
 TTGCTGTCTGTGCTGACCGTTCCAGCTTCCGCTTATGAAGTGCAGCAACGTGTCCGGGATG  
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 ATGCACACCCCCGGGTGCGTGCCCTGCGTTGCGGAGAACAACCTTCCCGCTGCTGGGTA  
 GCGCTCACCCCCACGCTCGCAGCTAGGAACGCCAGCGTCCCCACCACGACAATACGACGC  
 CACGTCGATTTGCTCGTTGGGGCGGCTGCTTTCTGTTCCGCTATGTACGTGGGGGACCTC  
 TGCGGATCTGTCTTCTCGTCTCCAGCTGTTACCATCTCGCCTCGCCGGCATGAGACG  
 GTGCAGGACTGCAATTGCTCAATCTATCCCGGCCACATAACGGGTCACCGTATGGCTTGG

Figure 211



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ATATGATGATGAACTGGTCGCCTACAACGGCCCTGGTGGTATCGCAGCTGCTCCGGATC  
CCACAAGCTGTCGTGGACATGGTGGCGGGGGCCATTGGGGAGTCCTGGCGGGCCTCGCC  
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GTCGACGGGCATACCCGCGTGTGAGGAGGGGAGCAGCCTCCGATACCAGGGGCCTTGTG  
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CACATCAACAGGACTGCCCTGAACTGCAACGACTCCCTCCAAACAGGGTTCTTTGCCGCA  
CTATTCTACAAACACAAATTCAACTCGTCTGGATGCCAGAGCGCTTGGCCAGCTGTGCG  
TCCATCGACAAGTTCGCTCAGGGGTGGGGTCCCCTCACTTAACTGAGCCTAACAGCTCG  
GACCAGAGGCCCTACTGCTGGCACTACGCGCCTCGACCGTGTGGTATTGTACCCGCGTCT  
CAGGTGTGCGGTCCAGTGTATTGCTTCACCCCGAGCCCTGTTGTGGTGGGGACGACCGAT  
CGGTTTGGTGTCCCCACGTATAACTGGGGGGCGAACGACTCGGATGTGCTGATTCTCAAC  
AACACGCGGCCGCCGCGAGGCAACTGGTTCCGGCTGTACATGGATGAATGGCACTGGGTTC  
ACCAAGACGTGTGGGGGCCCCCGTGCAACATCGGGGGGGCCGGCAACAACACCTTGACC  
TGCCCCACTGACTGTTTTTCGGAAGCACCCCGAGGCCACCTACGCCAGATGCGGTTCTGGG  
CCCTGGCTGACACCTAGGTGTATGGTTCATTACCCATATAGGCTCTGGCACTACCCCTGC  
ACTGTCAACTTCACCATCTTCAAGGTTAGGATGTACGTGGGGGGCGTGGAGCACAGGTTG  
GAAGCCGCATGCAATTGGACTCGAGGAGAGCGTTGTGACTTGGAGGACAGGGATAGATCA  
GAGCTTAGCCCGCTGCTGCTGTCTACAACAGAGTGGCAGATACTGCCCTGTTCCCTTACC  
ACCCTGCCGGCCCTATCCACCGGCCTGATCCACCTCCATCAGAACATCGTGGACGTGCAA  
TACCTGTACGGTGTAGGGTCGGCGGTTGTCTCCCTTGTCATCAAATGGGAGTATGTCCTG  
TTGCTCTTCTTCTCCTGGCAGACGCGCGCATCTGCGCCTGCTTATGGATGATGCTGCTG  
ATAGCTCAAGCTGAGGCCGCTTAGAGAACCTGGTGGTCCTCAATGCGGGCGGCCGTGGCC  
GGGGCGCATGGCACTCTTTCCTTCTTGTGTTCTTCTGTGCTGCCTGGTACATCAAGGGC  
AGGCTGGTCCCTGGTGGGCATACGCCTTCTATGGCGTGTGGCCGCTGCTCCTGCTTCTG  
CTGGCCTTACCACCACGAGCTTATGCCTAGTAA

Figure 21J



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OD measured at 450nm  
 construct

Fraction	Volume	dilution	39 type 1b	40 type 1b	62 type 3a	63 type 5a
Start	23ml	1/20	2.517	1.954	1.426	1.142
Flow through	23ml	1/20	0.087	0.085	0.176	0.120
1	0.4ml	1/200	0.102	0.051	0.048	0.050
2			0.396	0.550	0.090	0.067
3			2.627	2.603	2.481	2.372
4			3	2.967	3	2.694
5			3	2.810	2.640	2.154
6			2.694	2.499	1.359	1.561
7			2.408	2.481	0.347	1.390
8			2.176	1.970	1.624	0.865
9			1.461	1.422	0.887	0.604
10			1.286	0.926	0.543	0.519
11			0.981	0.781	0.294	0.294
12			0.812	0.650	0.249	0.199
13			0.373	0.432	0.239	0.209
14			0.653	0.371	0.145	0.184
15			0.441	0.348	0.151	0.151
16			0.321	0.374	0.098	0.106
17			0.525	0.186	0.099	0.108
18			0.351	0.171	0.083	0.090
19			0.192	0.164	0.084	0.087

Figure 22



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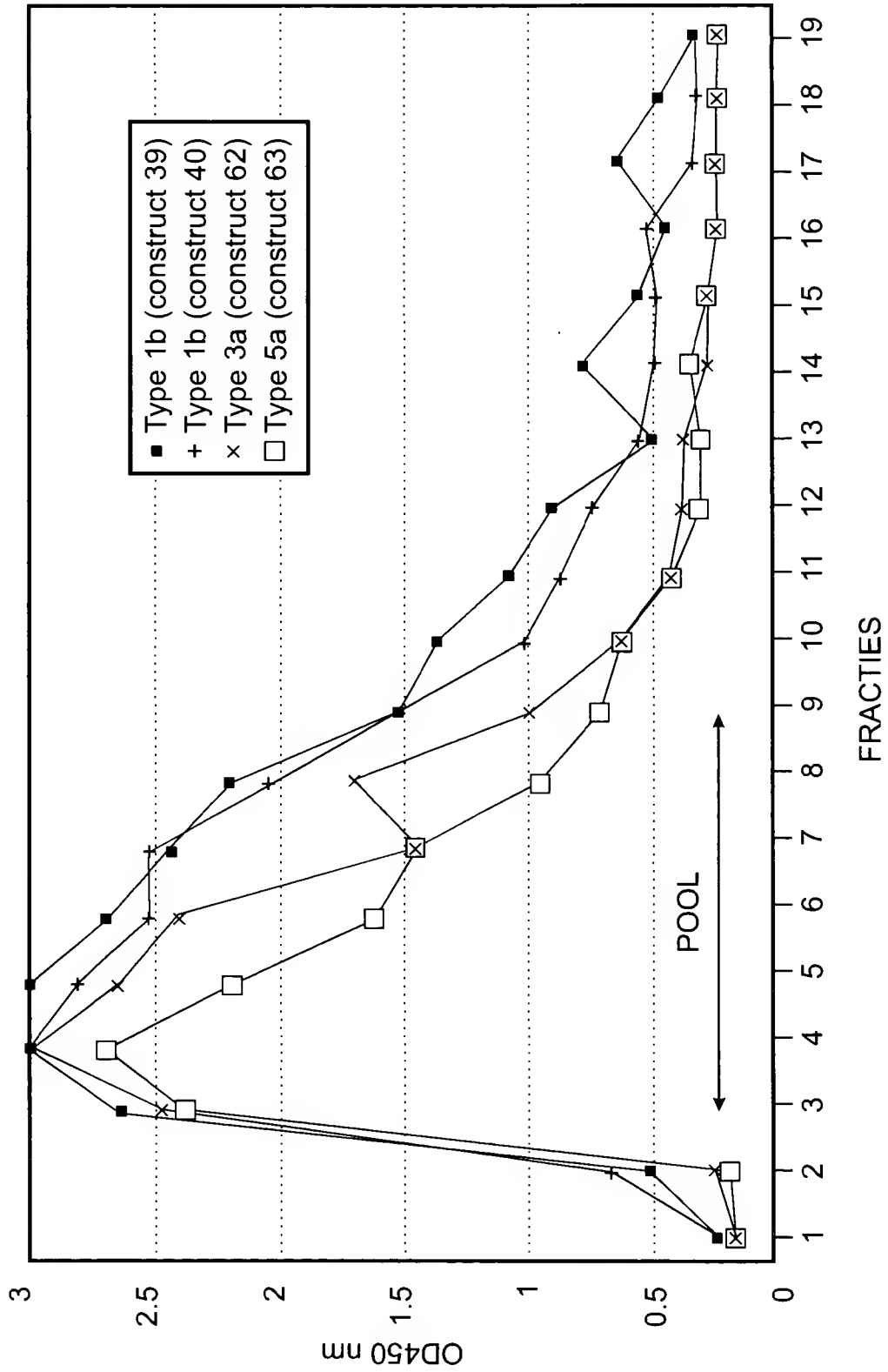


Figure 23





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OD measured at 450nm  
 construct

Fraction	Volume	dilution	39 type 1b	40 type 1b	62 type 3a	63 type 5a
20	250µl	1/200	0.072	0.130	0.096	0.051
21			0.109	0.293	0.084	0.052
22			0.279	0.249	0.172	0.052
23			0.093	0.151	0.297	0.054
24			0.080	0.266	0.438	0.056
25			0.251	0.100	0.457	0.048
26			3	1.649	0.722	0.066
27			3	3	2.528	0.889
28			3	3	3	2.345
29			3	3	2.849	2.580
30			2.227	1.921	1.424	1.333
31			0.263	0.415	0.356	0.162
32			0.071	0.172	0.154	0.064
33			0.103	0.054	0.096	0.057
34			0.045	0.045	0.044	0.051
35			0.043	0.047	0.045	0.046
36			0.045	0.045	0.049	0.040
37			0.045	0.047	0.046	0.048
38			0.046	0.048	0.047	0.057
39			0.045	0.048	0.050	0.057
40			0.046	0.049	0.048	0.049

Figure 24



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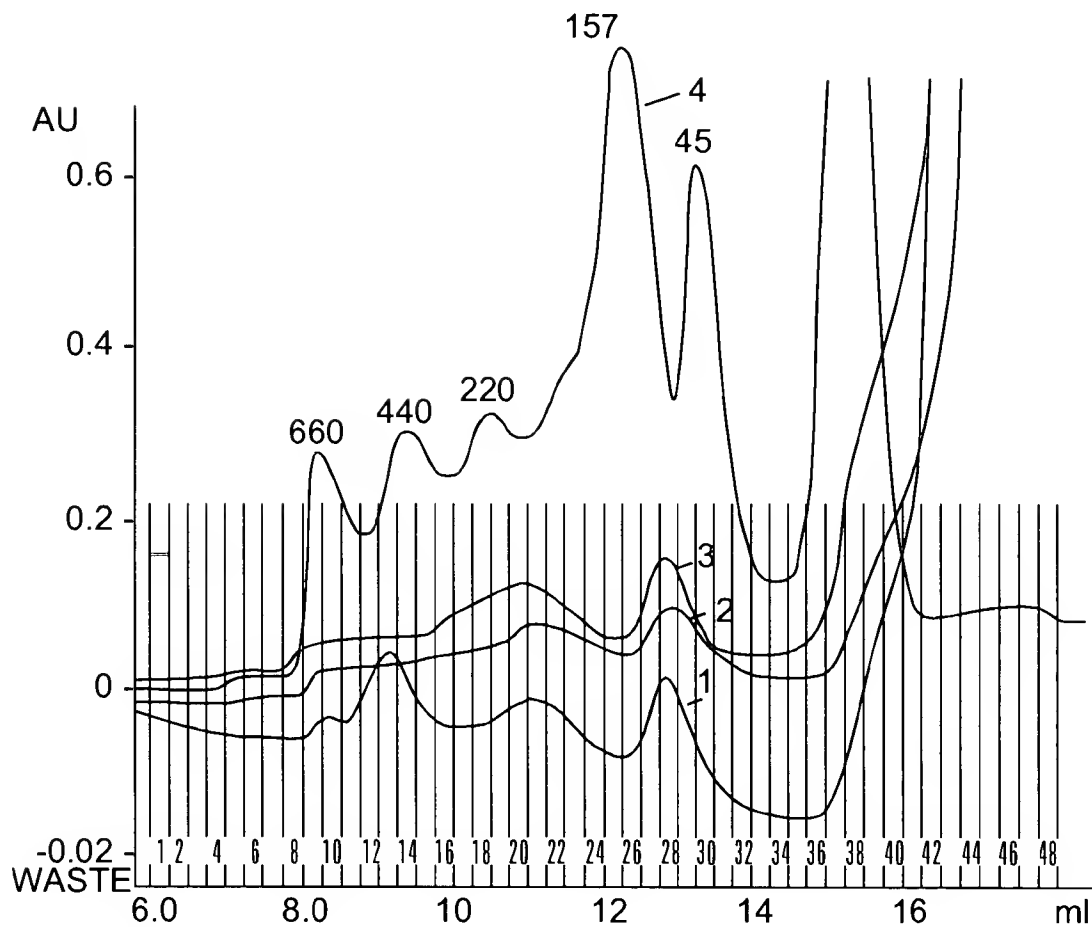


Figure 25

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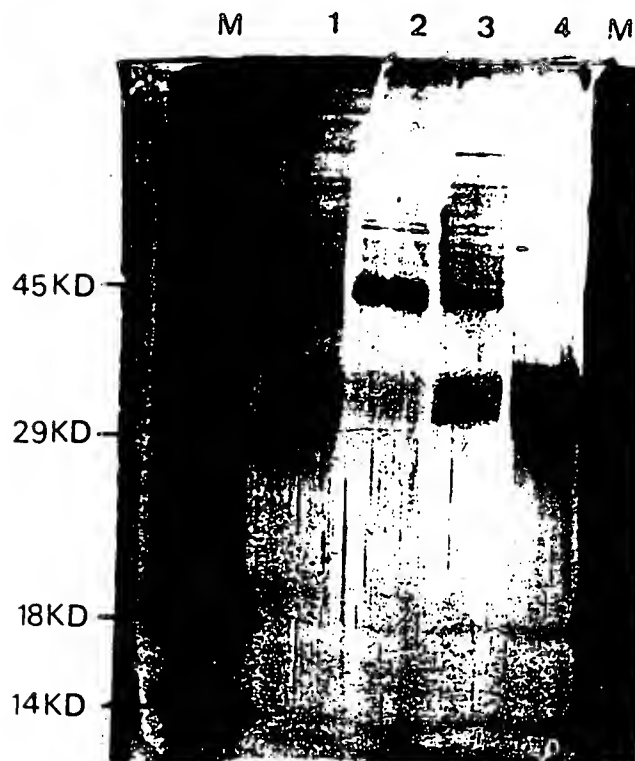


Fig. 26

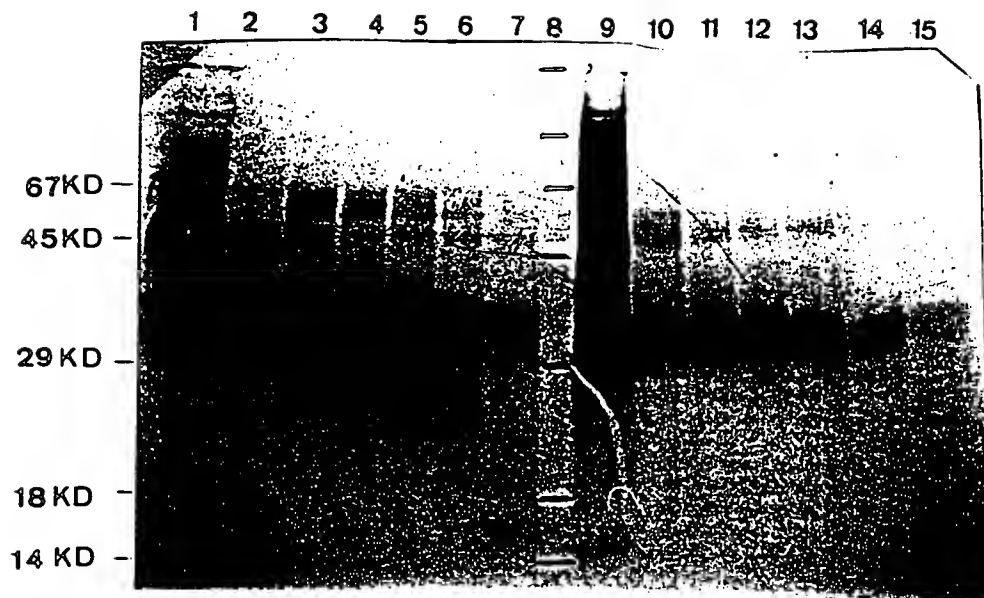


Fig. 27

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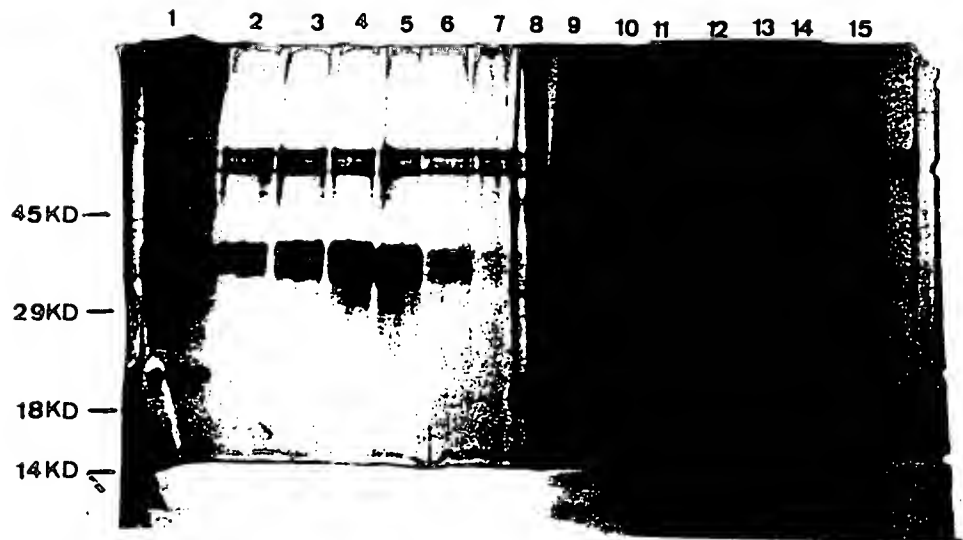


Fig.28

M 1 2 3 4 5 6

Fig.29

67 kD -

45 kD -

29 kD -

18 kD -

14 kD -

Lane 1: Crude Lysate  
 Lane 2: Flow through Lentil Chromatography  
 Lane 3: Wash with EMPIGEN Lentil Chromatography  
 Lane 4: Eluate Lentil Chromatography  
 Lane 5: Flow through during concentration lentil eluate  
 Lane 6: Pool of E1 after Size Exclusion Chromatography

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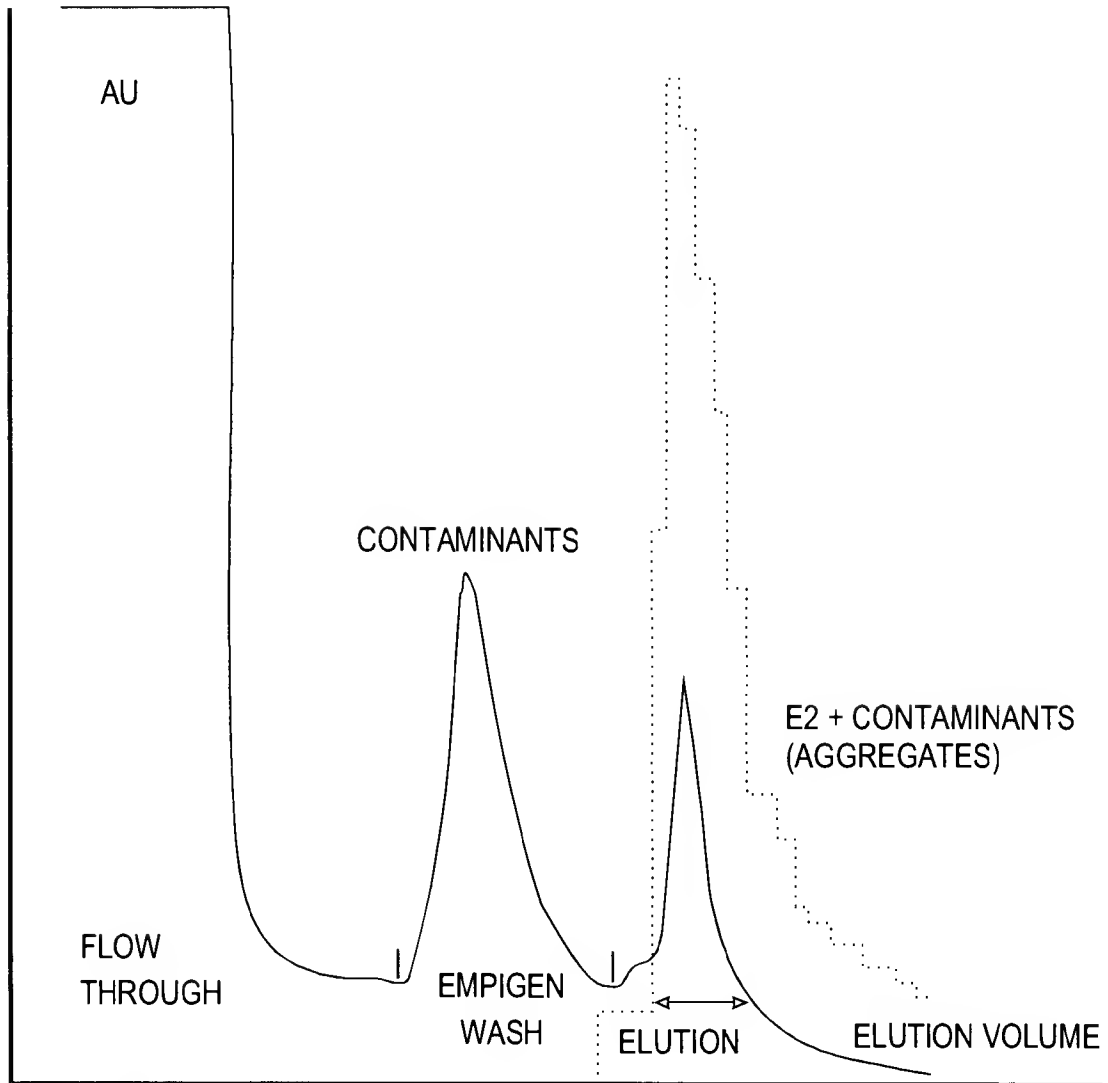


Figure 30

NON-REDUCED

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E2 + CONTAMINANTS (AGGREGATES)

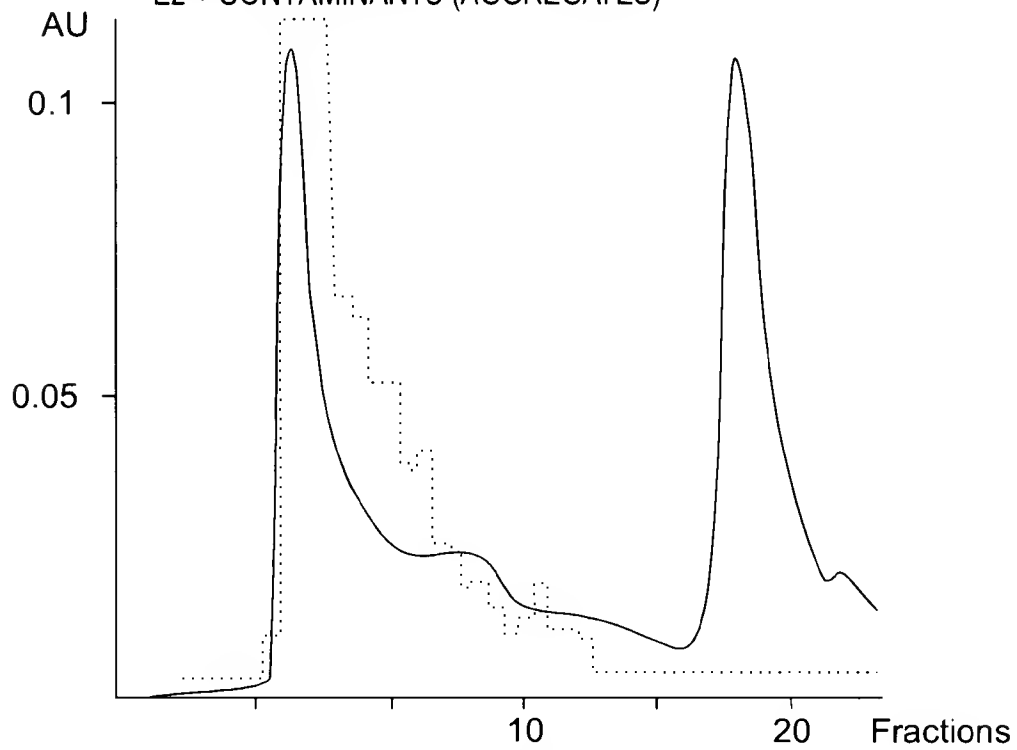


Figure 31A

REDUCED

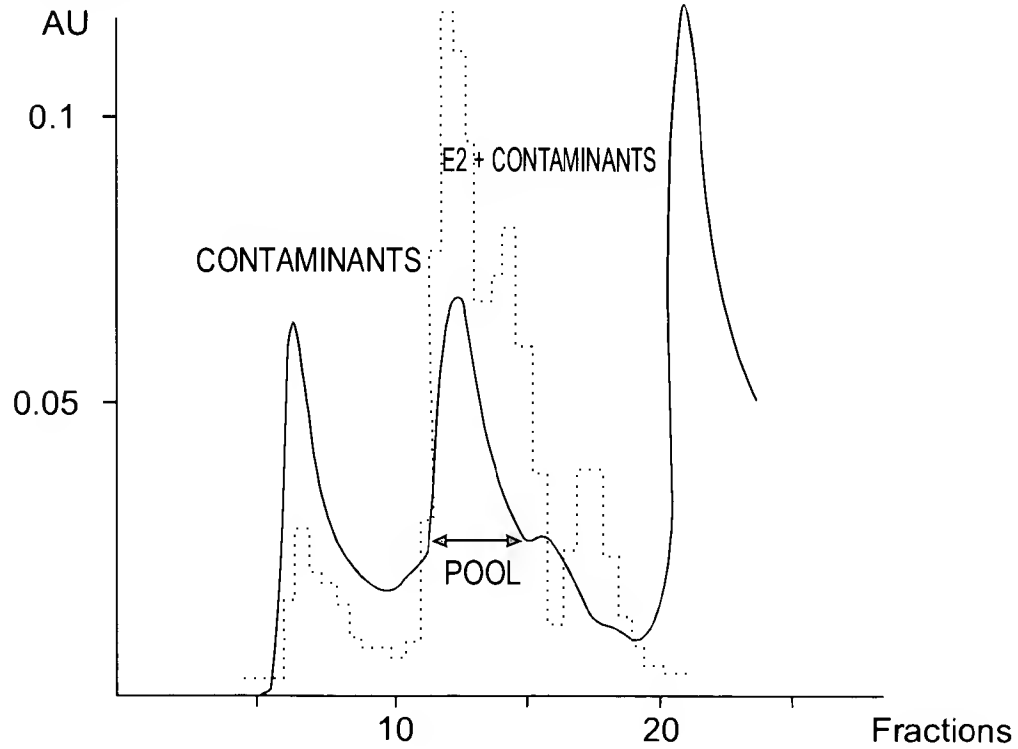


Figure 31B



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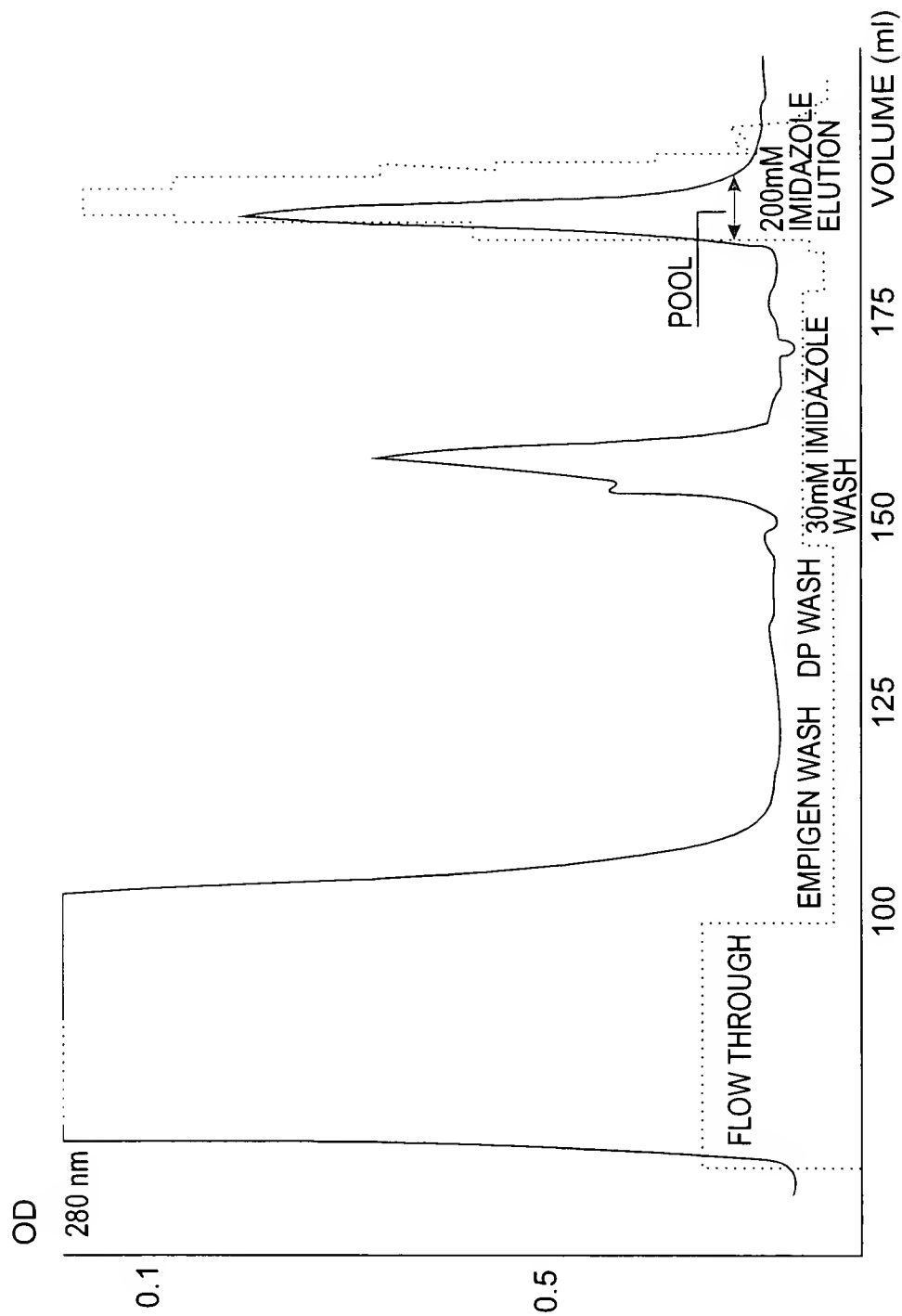
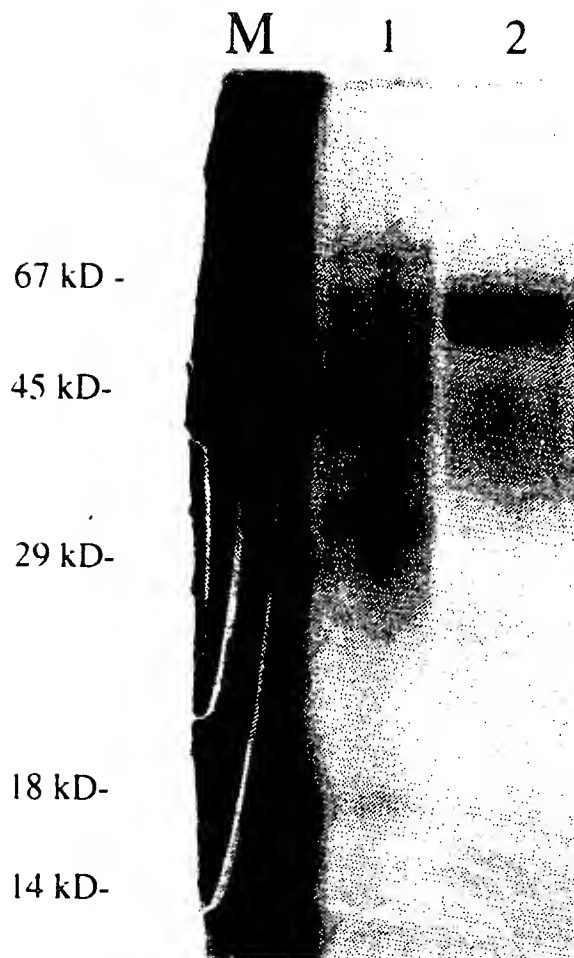


Figure 32

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## SILVER STAIN OF PURIFIED E2

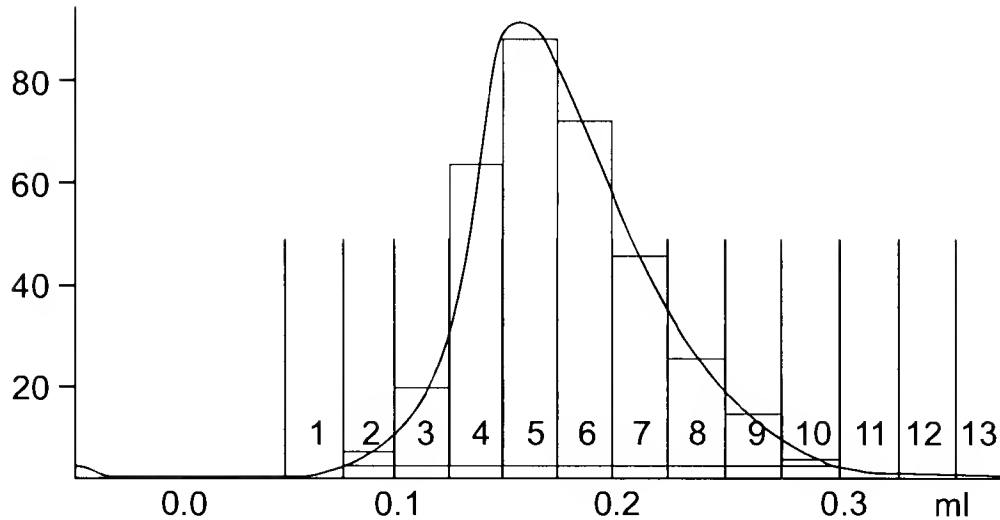


1. 30 mM IMIDAZOLE WASH Ni-IMAC
2. 0.5 ug E2

Fig.33



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No.	Ret (ml)	Peak start (ml)	Peak end (ml)	Dur (ml)	Area (ml*mAU)	Height (mAU)
1	-0.45	-0.46	-0.43	0.04	0.0976	4.579
2	1.55	0.75	3.26	2.51	796.4167	889.377
3	3.27	3.26	3.31	0.05	0.0067	0.224
4	3.33	3.32	3.33	0.02	0.0002	0.018

Total number of detected peaks = 4  
 Total Area above baseline = 0.796522 ml\*AU  
 Total area in evaluated peaks = 0.796521 ml\*AU  
 Ratio peak area / total area = 0.999999  
 Total peak duration = 2.613583 ml

Figure 34

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NS4 Ab NR

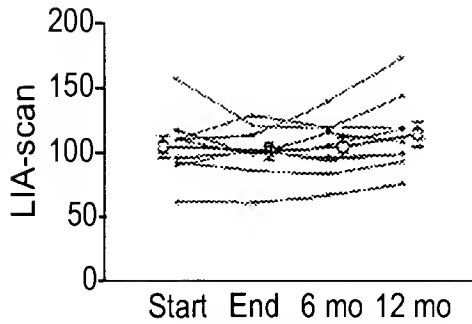


Fig. 35A-1

NS4 Ab LTR

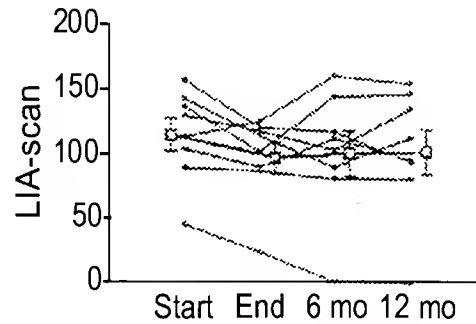


Fig. 35A-2

NS5 Ab NR

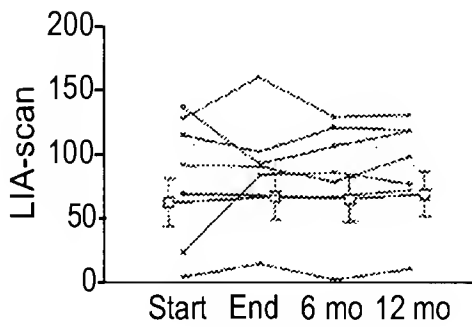


Fig. 35A-3

NS5 Ab LTR

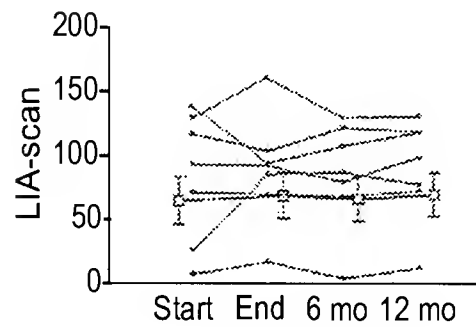


Fig. 35A-4

E1 Ab NR

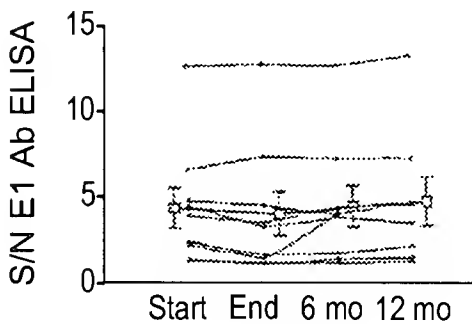


Fig. 35A-5

E1 Ab LTR

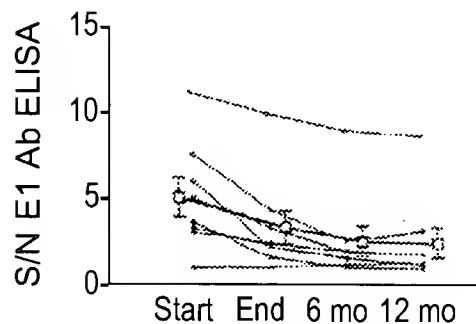


Fig. 35A-6

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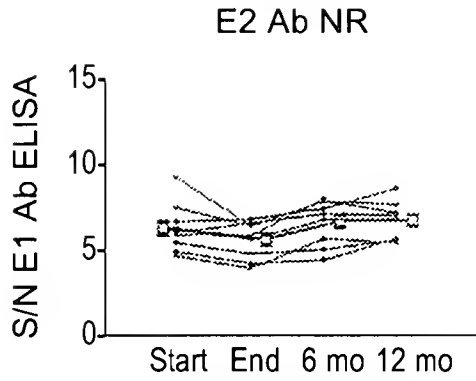


Fig. 35A-7

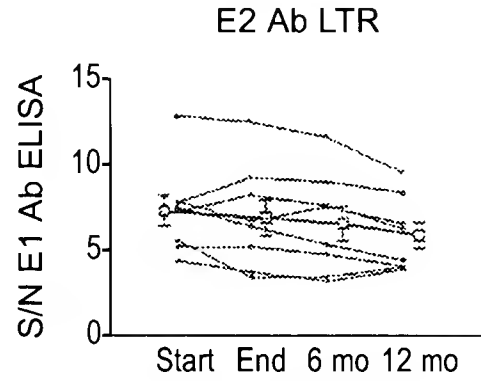


Fig. 35A-8

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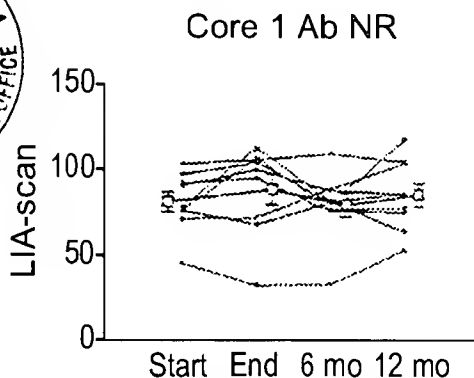


Fig. 35B-1

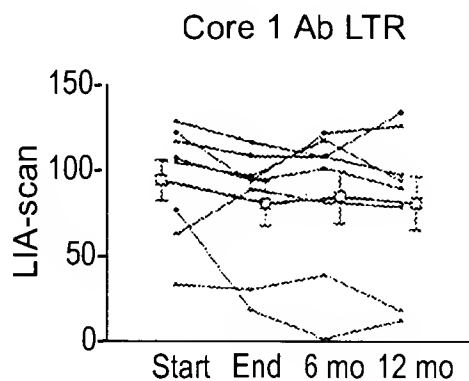


Fig. 35B-2

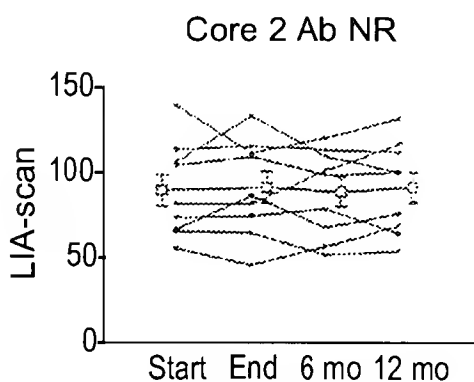


Fig. 35B-3

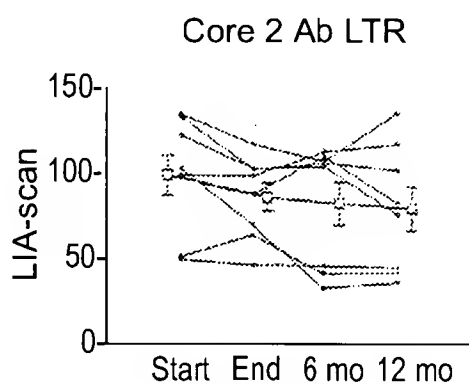


Fig. 35B-4

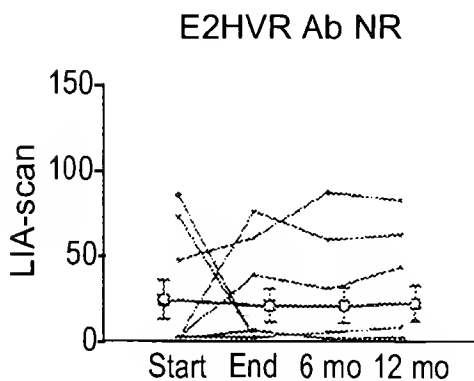


Fig. 35B-5

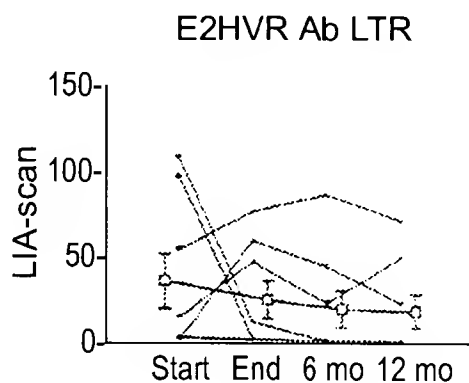


Fig. 35B-6

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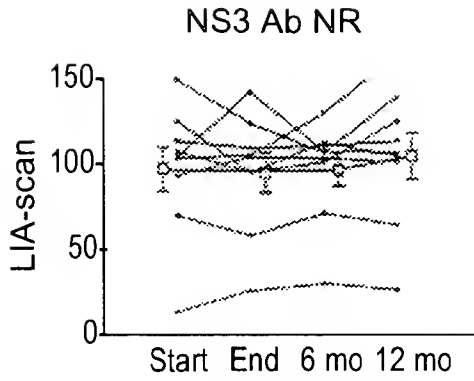


Fig. 35B-7

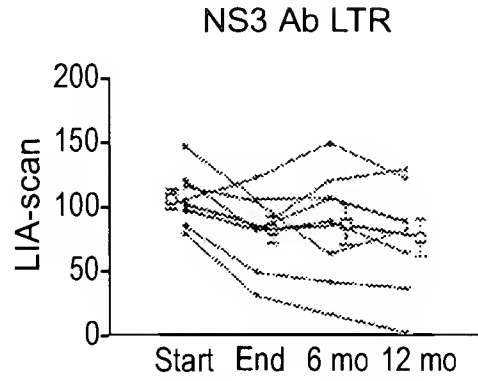


Fig. 35B-8

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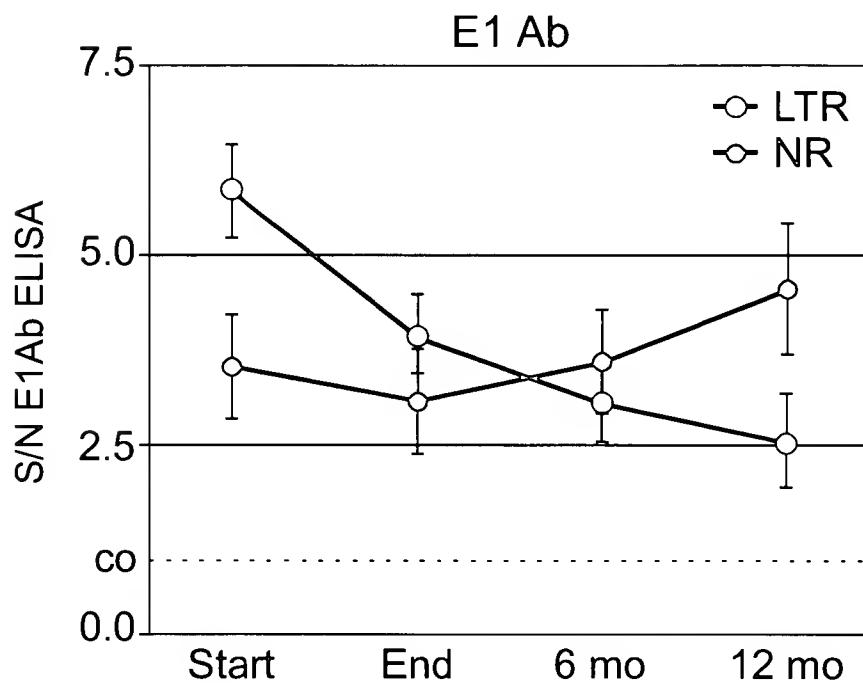
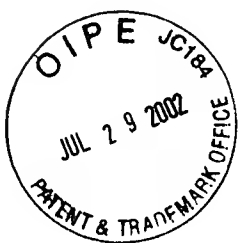


Figure 36A

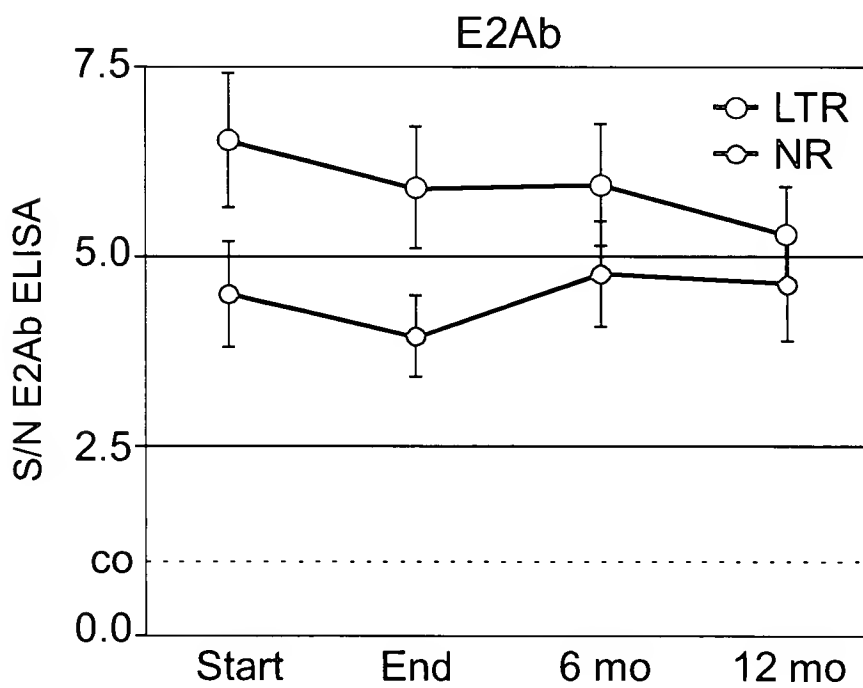


Figure 36B

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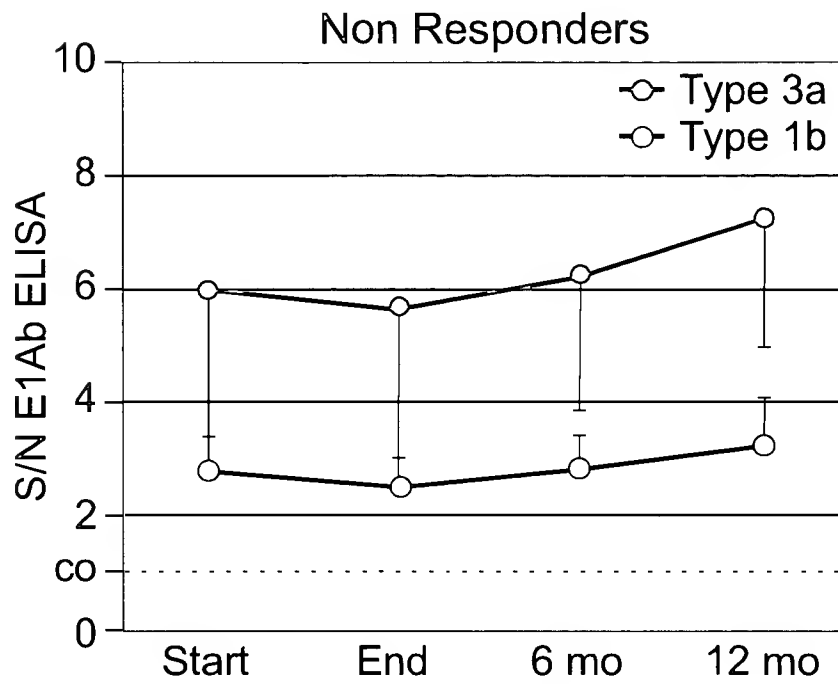


Figure 37A

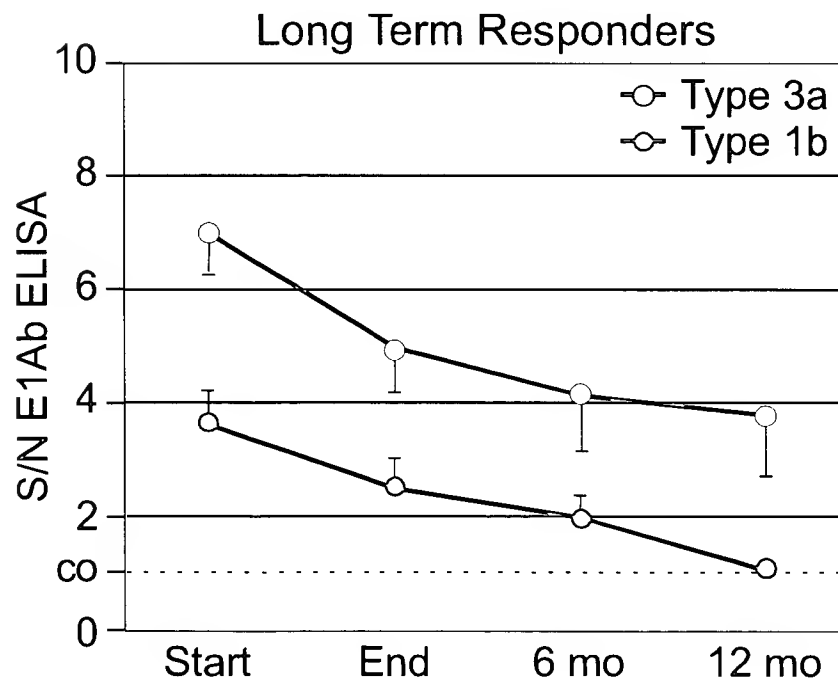


Figure 37B



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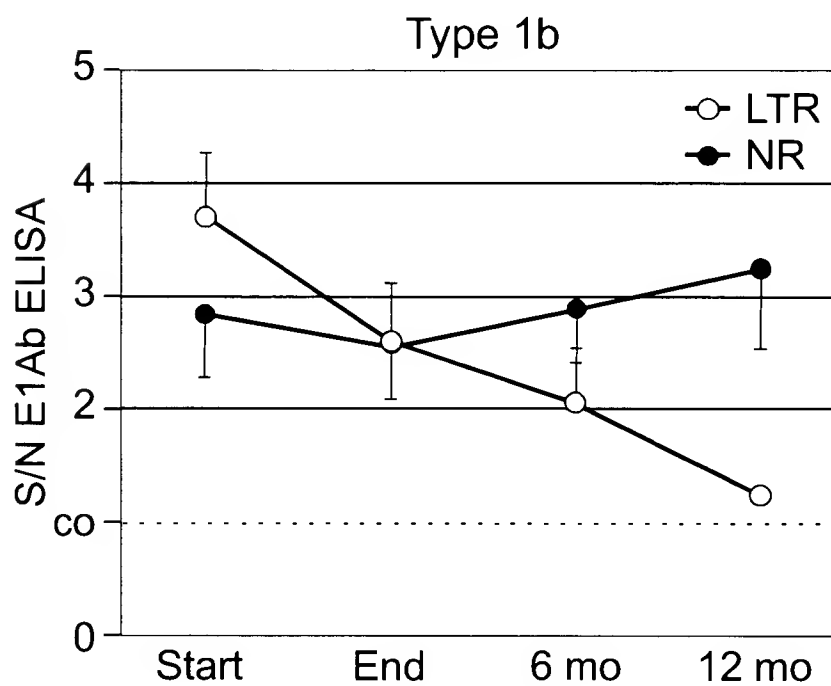


Figure 37C

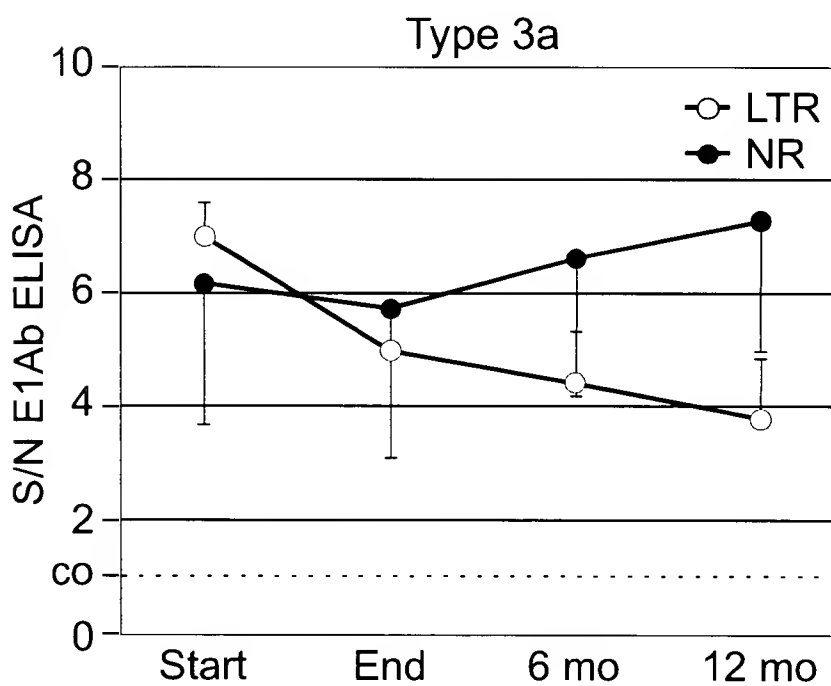


Figure 37D



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Relative Map Positions of  
anti-E2 monoclonal antibodies

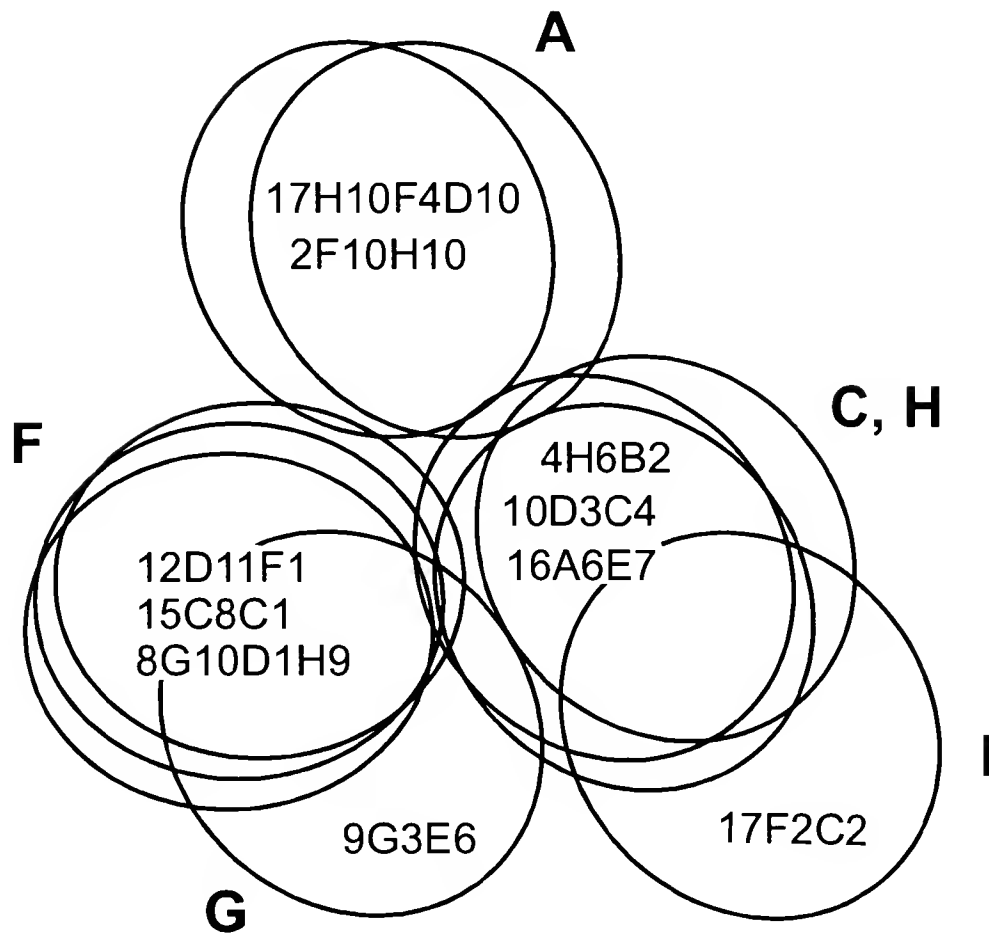


Figure 38

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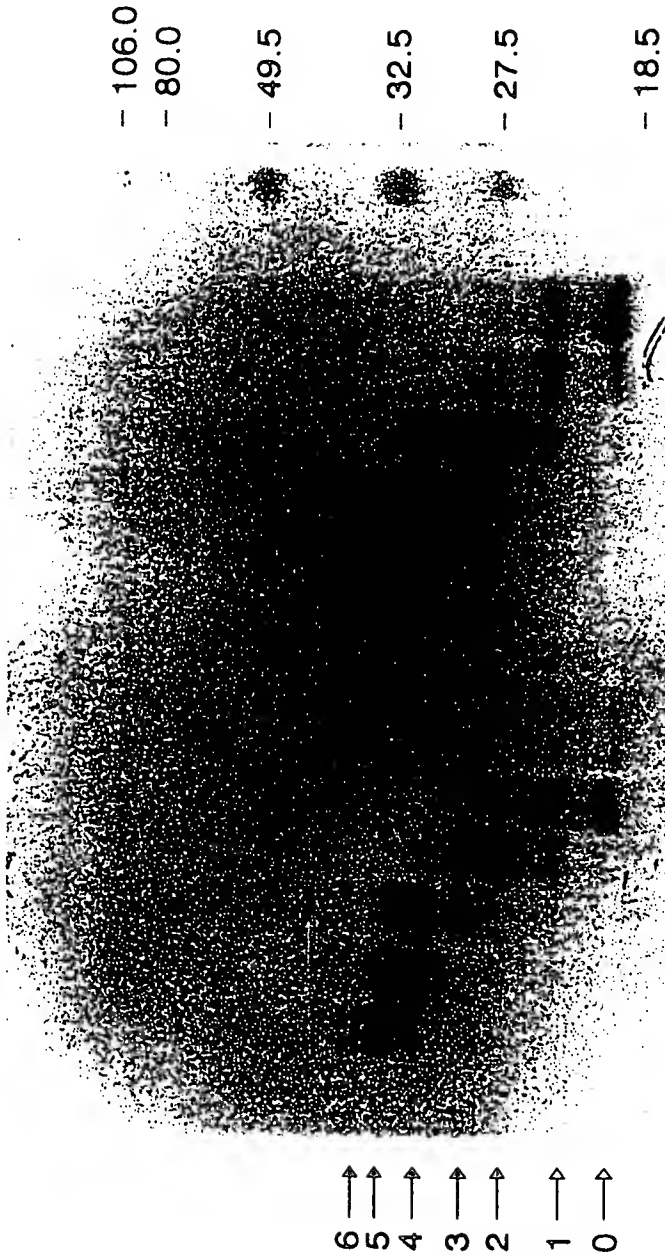


Fig.39

PARTIAL DEGLYCOSYLATION  
 OF HCV E1 ENVELOPE PROTEIN

Endoglycosidase H (Endo H)      Glycopeptidase F (PNGase F)

0µg    0.6µg    6µg    60µg    0.6µg    6µg    0.04µg    0.4µg    4µg    40µg    400µg



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# PARTIAL TREATMENT OF HCV E2\E2s ENVELOPE PROTEINS BY PNGase F

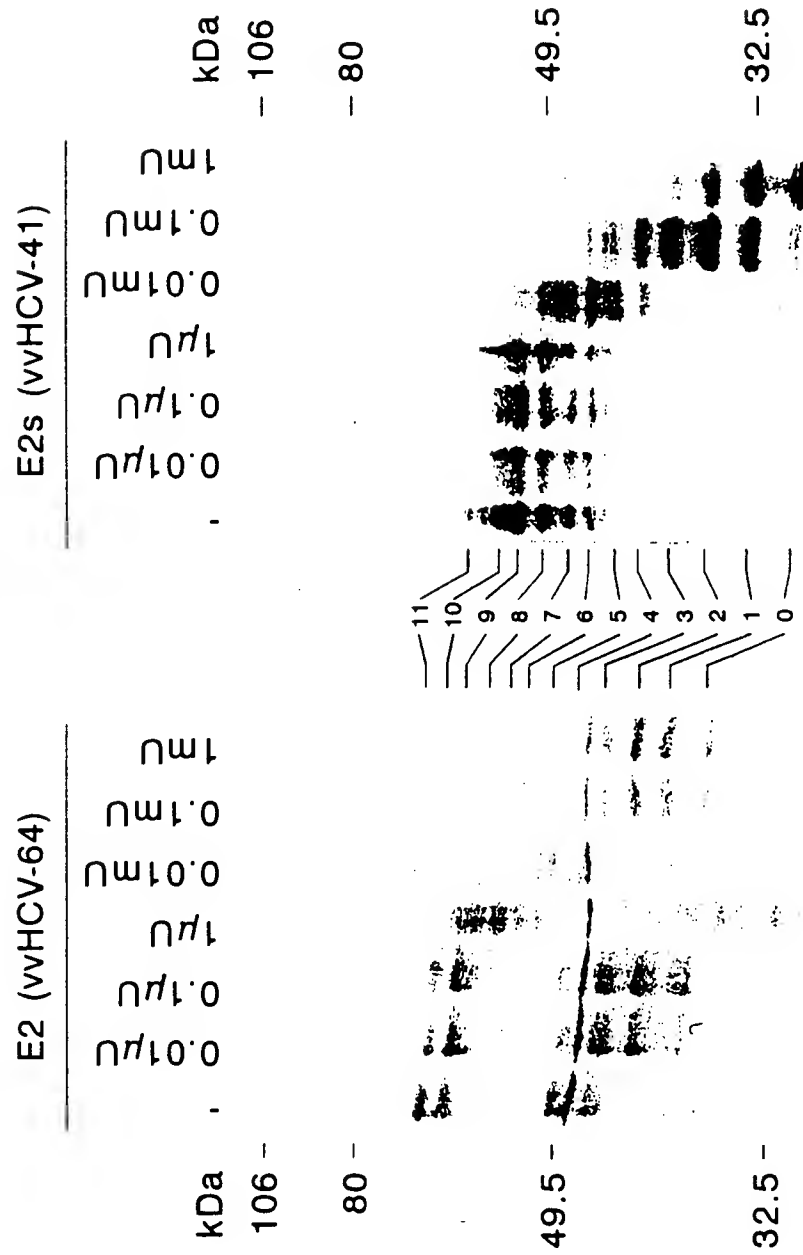


Fig. 40

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# In vitro mutagenesis of HCV E1 glycoprotein

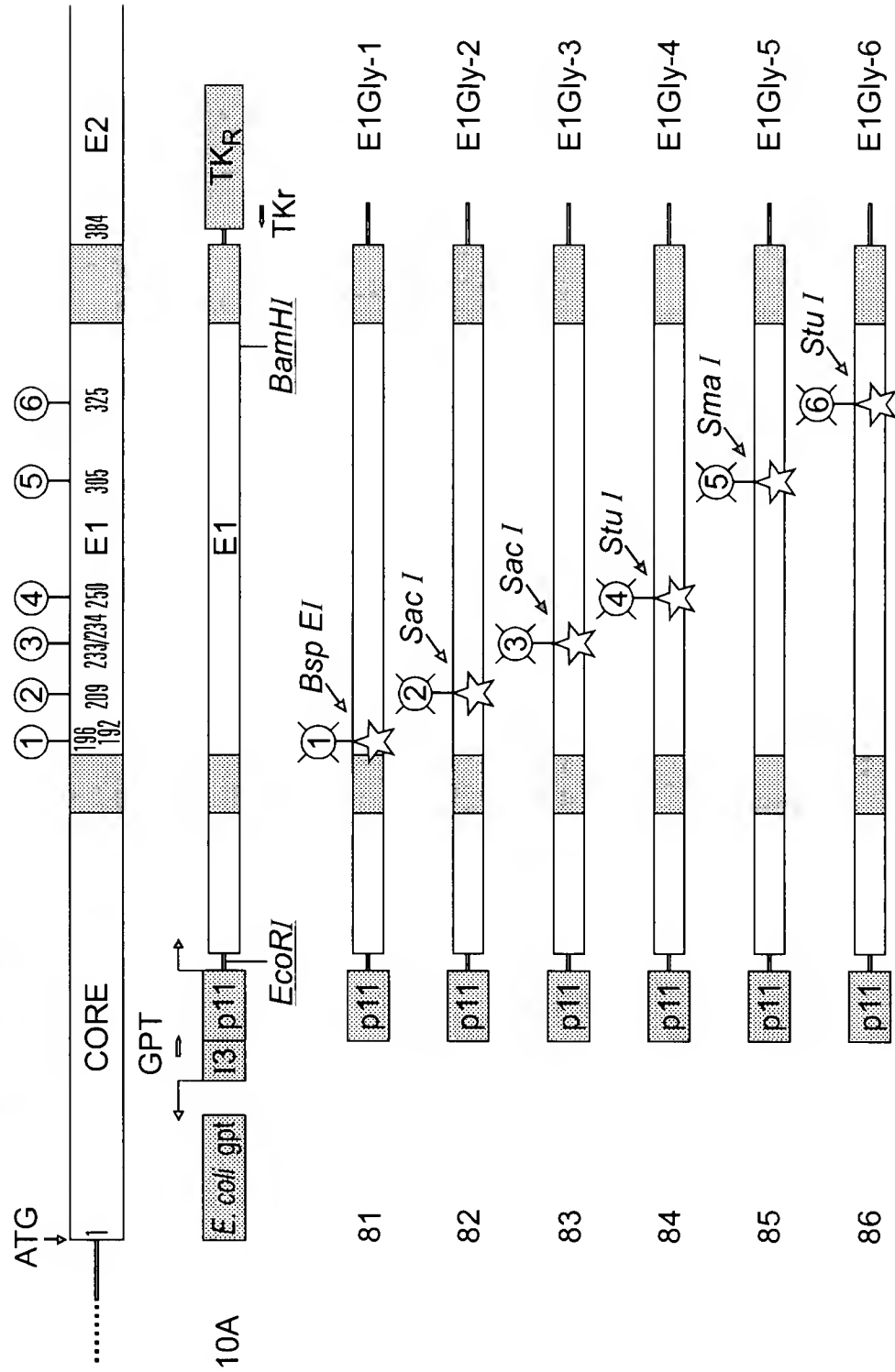


Figure 41

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# In vitro mutagenesis of HCV E1 glycoprotein

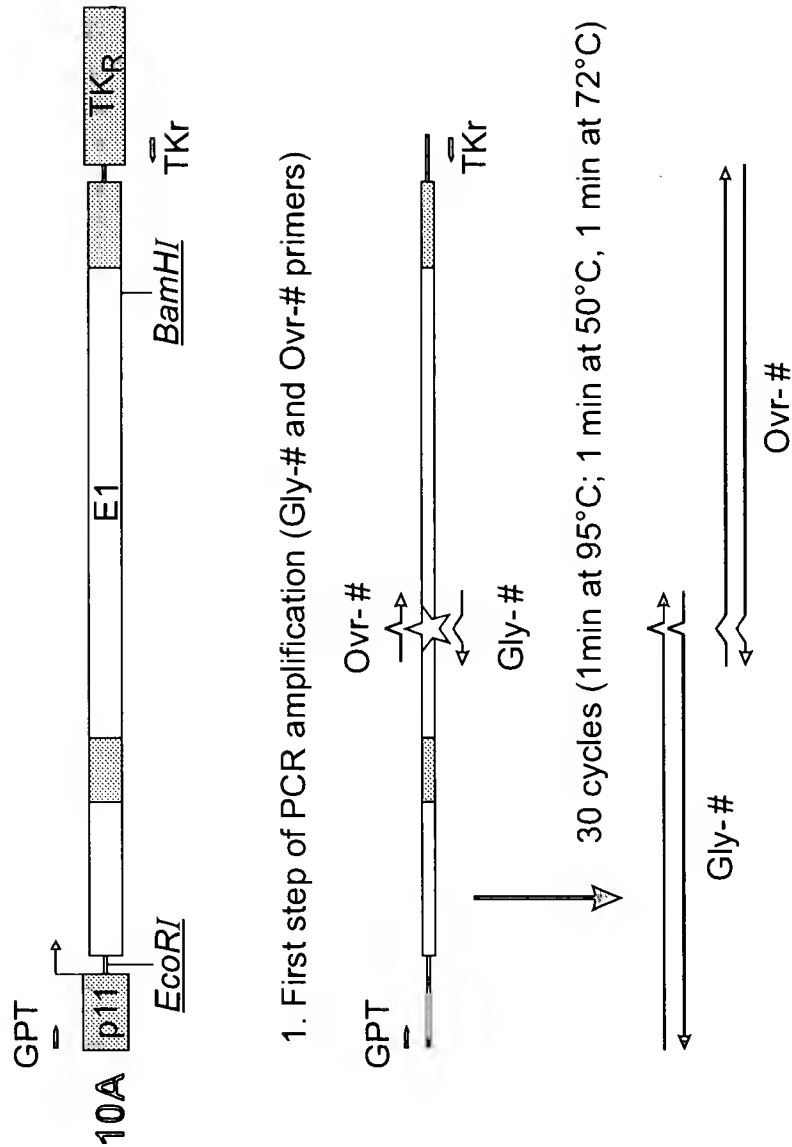


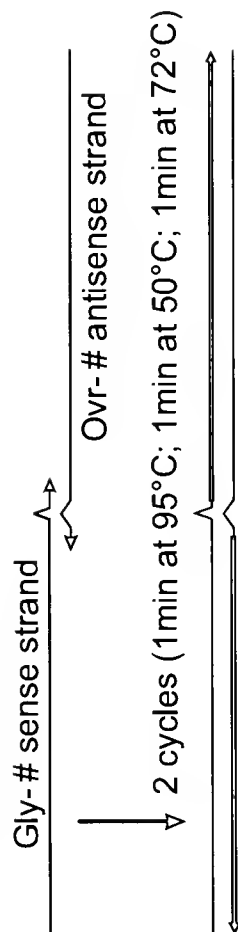
Figure 42A

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## 2. Overlap extension and nested PCR

### a. Overlap extension



### b. Nested PCR amplification (GPT-2 and TKr-2 primers)

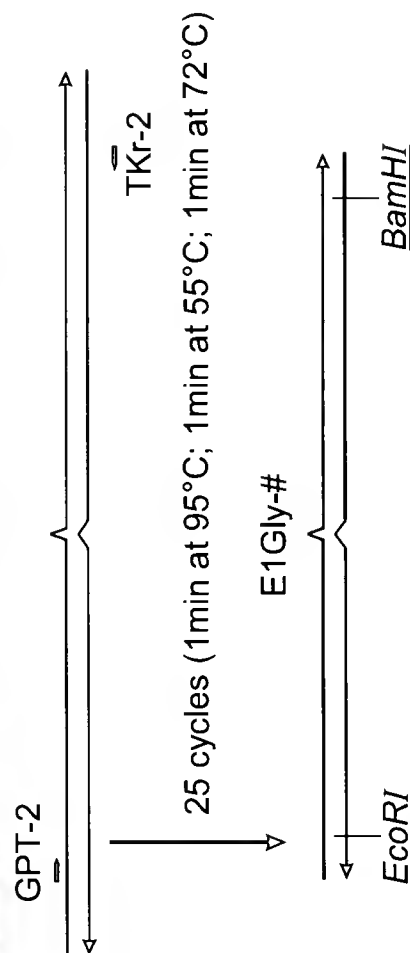


Figure 42B

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# In vitro mutagenesis of HCV E1 glycoprotein

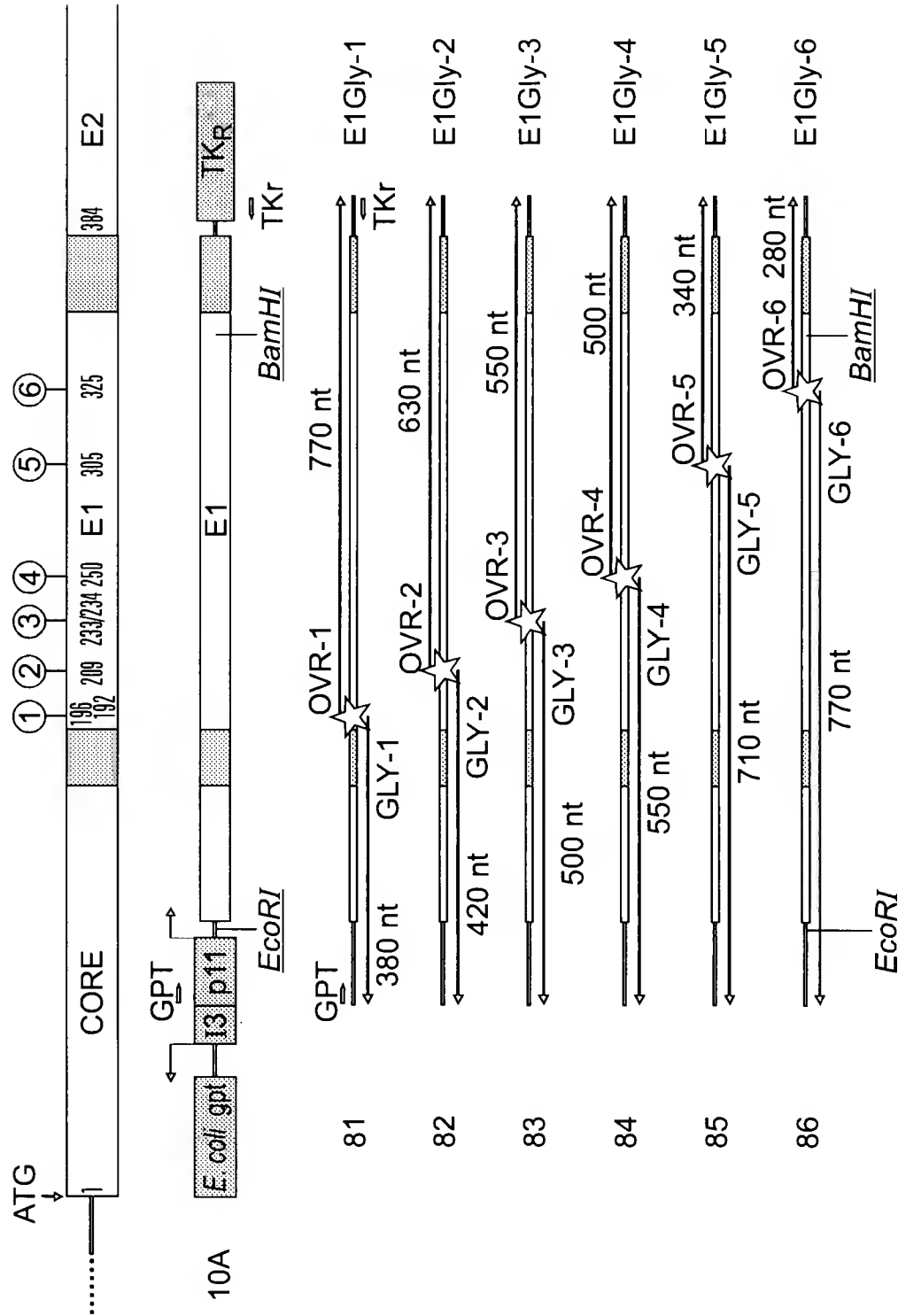


Figure 43

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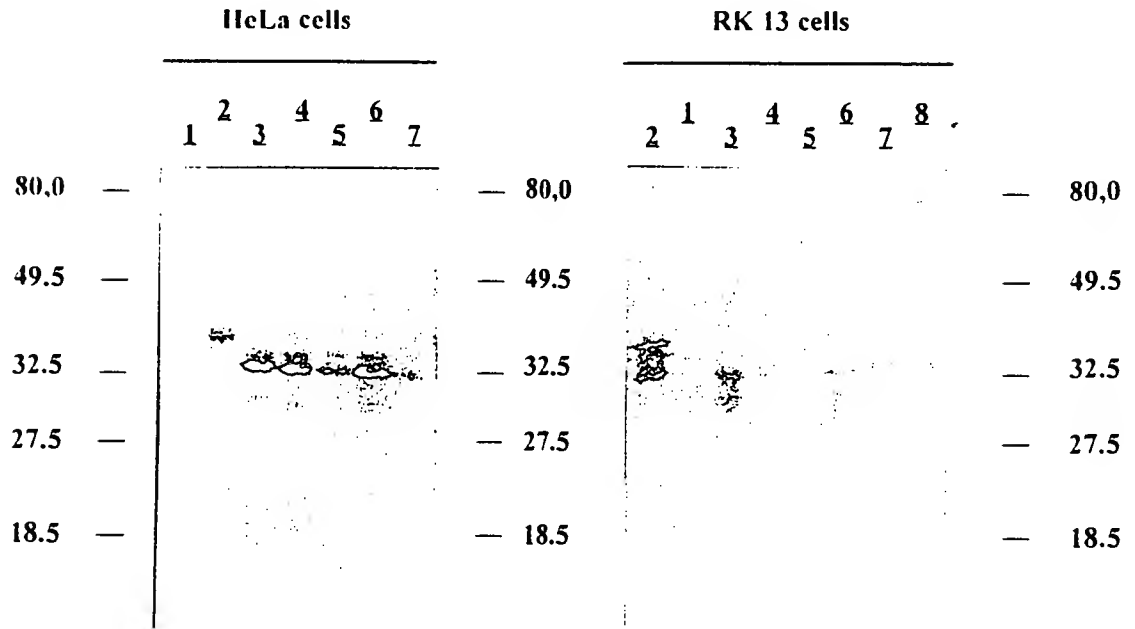


Fig. 44A

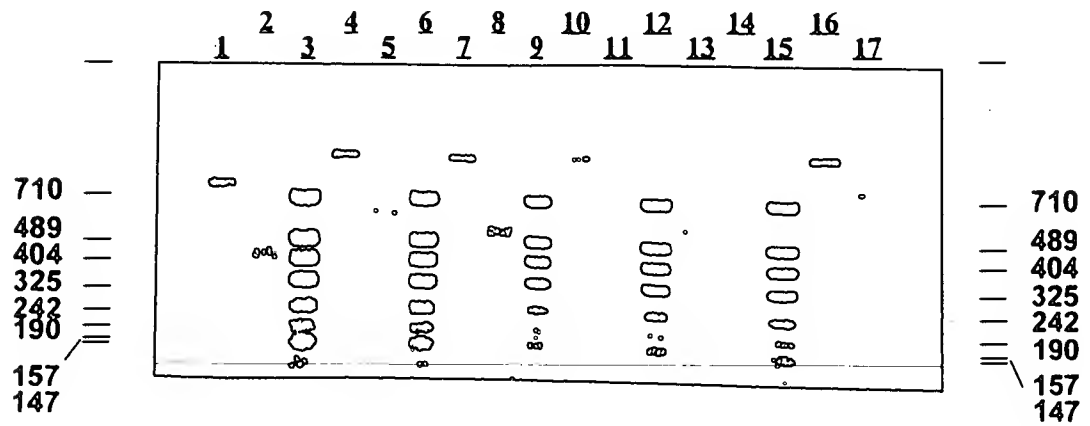


Fig. 44B



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Fig. 45

KDa	119	67	43	29	18



Fig. 46

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	age (years)	HCV infection (years)	genotype
Marcel	17	9	1a
Peggy	21	16,5	1b
Femma	15	9	1a
Yoran	12	none	
Marti	12	none	

**chronic carriers (strong T-cell adjuvant)**

↓ ↓ ↓ ↓ ↓ ↓      ↓ ↓ ↓ ↓ ↓ ↓      50 µg E1 dose

---

0 3 6 9 12 15      26 29 32 35 38 41      weeks

**naive (alum)**

↓ ↓ ↓ ↓ ↓ ↓      50 µg E1 dose

---

0 3 6 9 12 15      weeks

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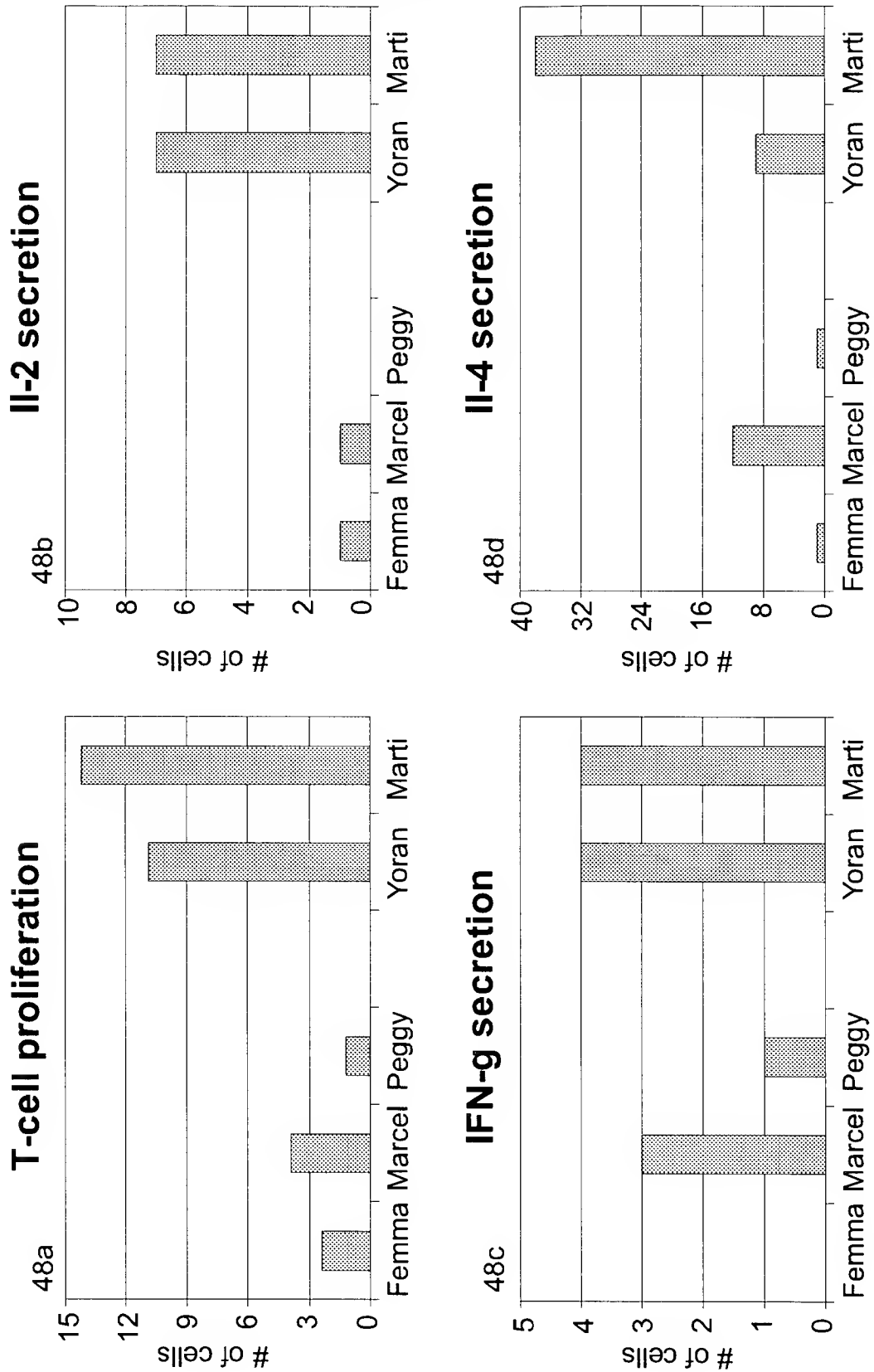
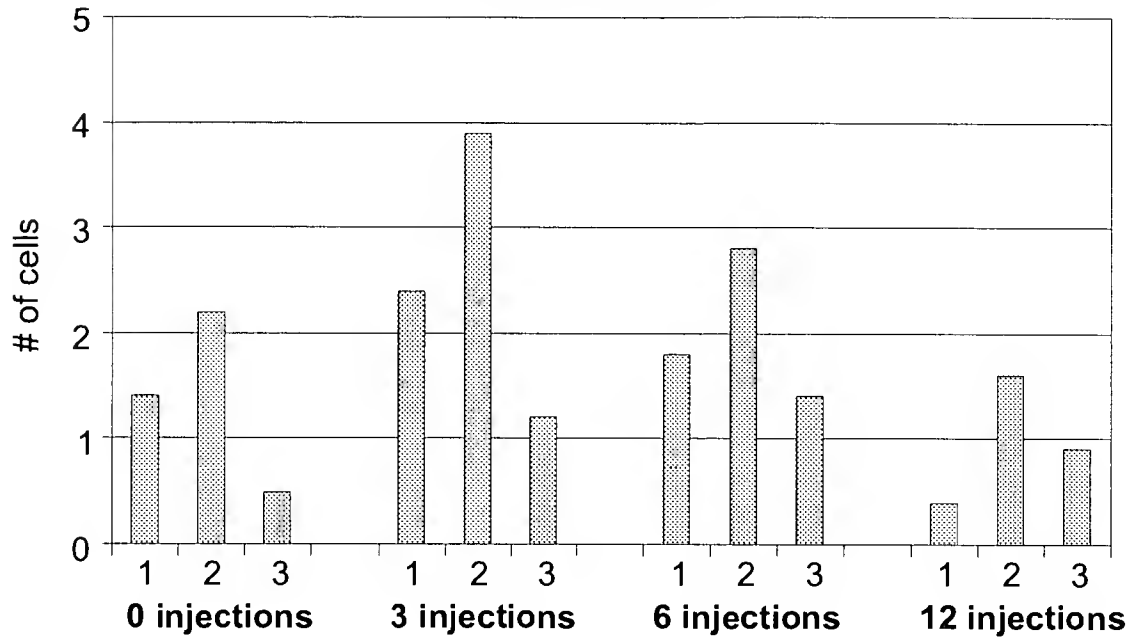


Figure 48

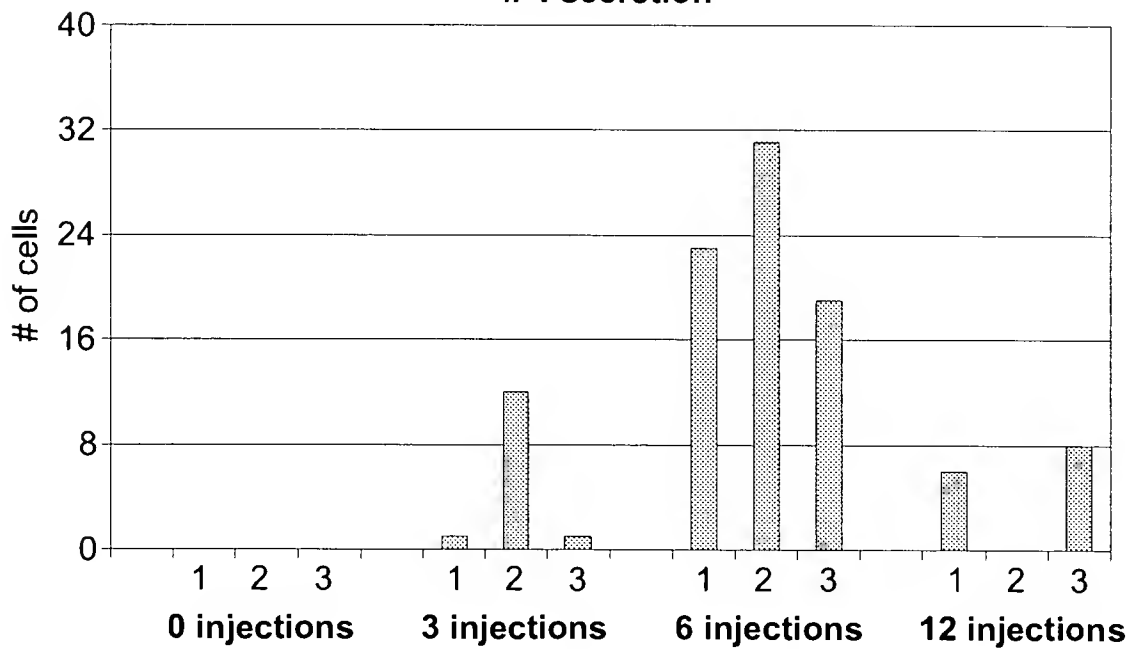
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### T-cell proliferation



### IL-4 secretion



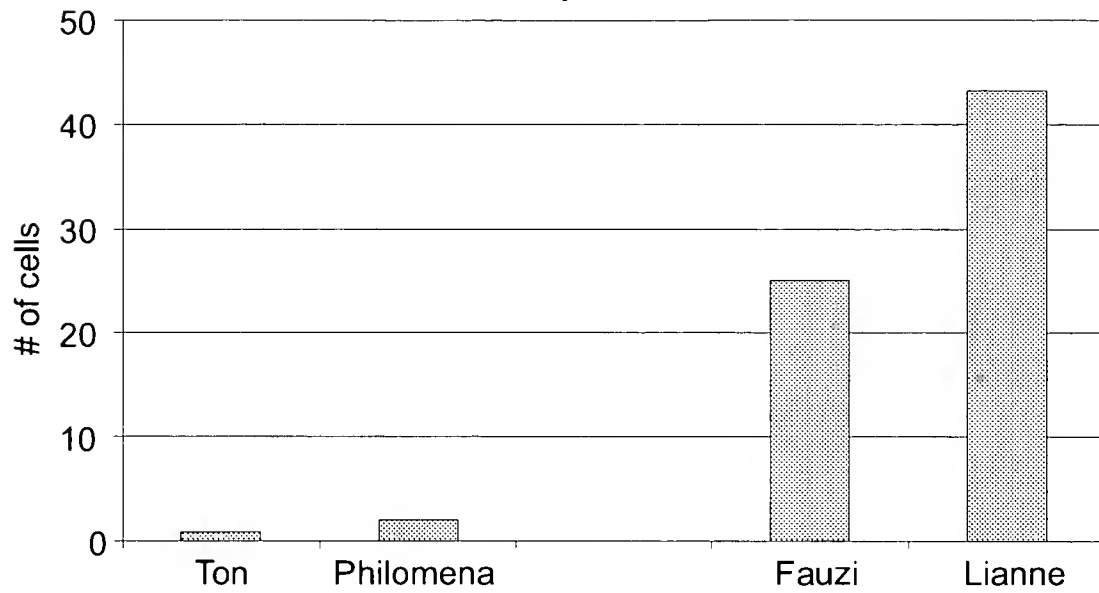
1: Femma, 2: Marcel, 3: Peggy

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### T-cell proliferation



### Il-2 secretion

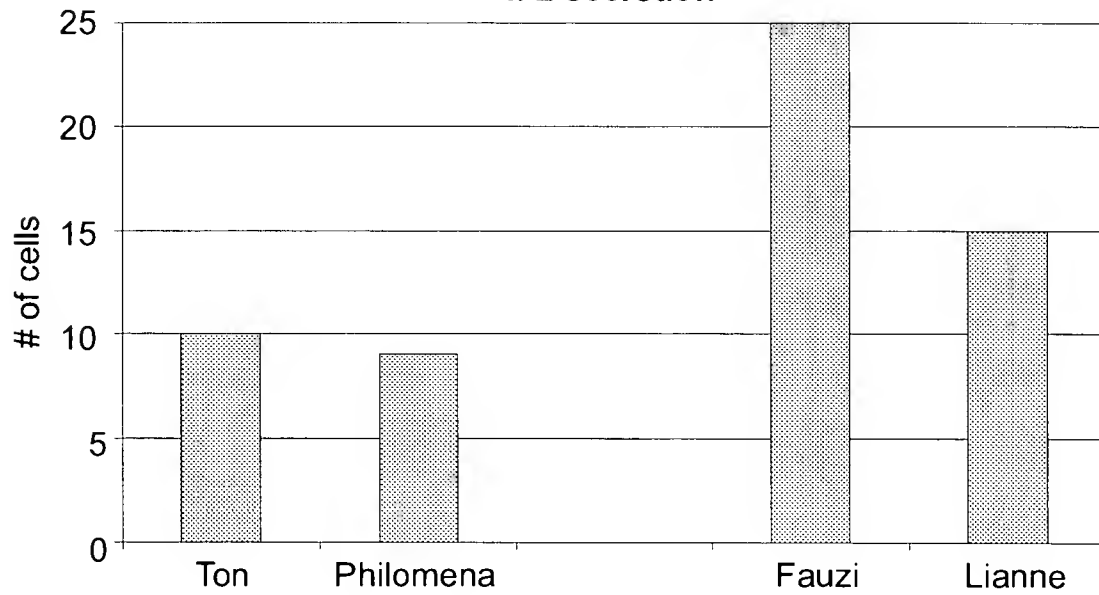


Figure 50

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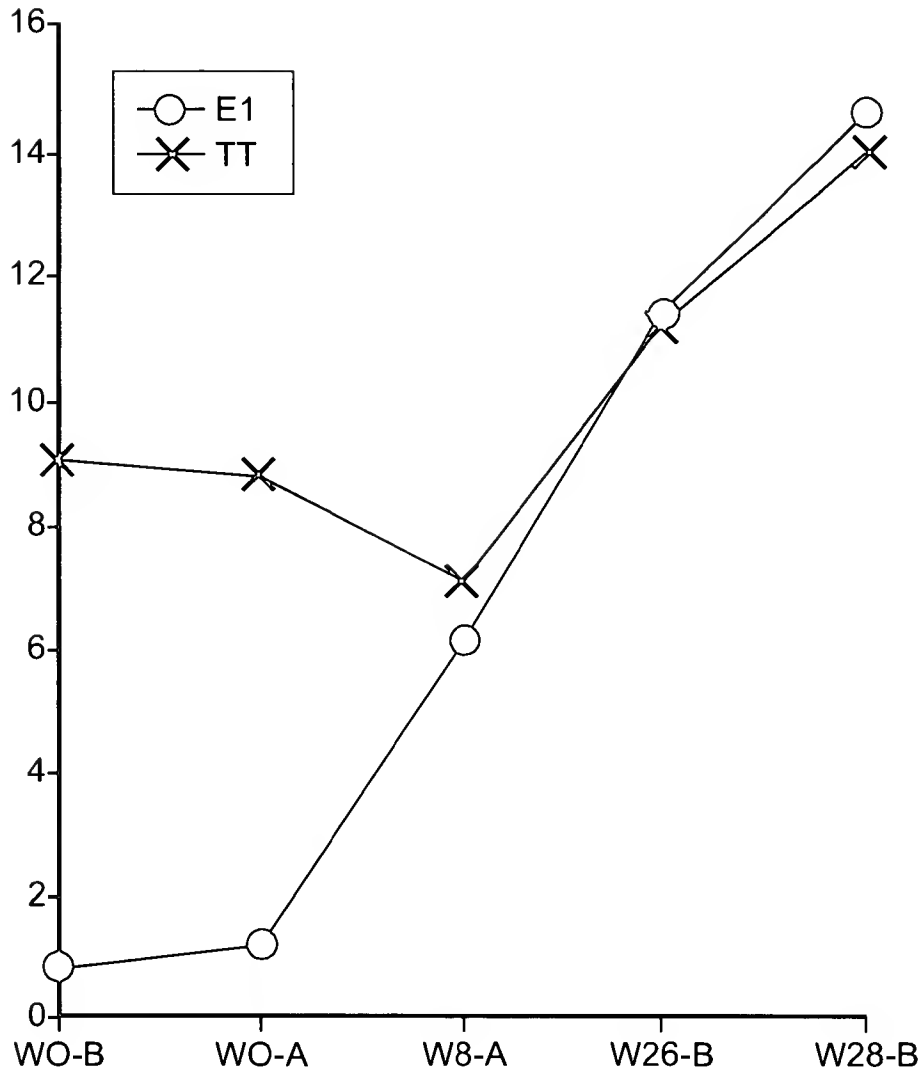


Figure 51

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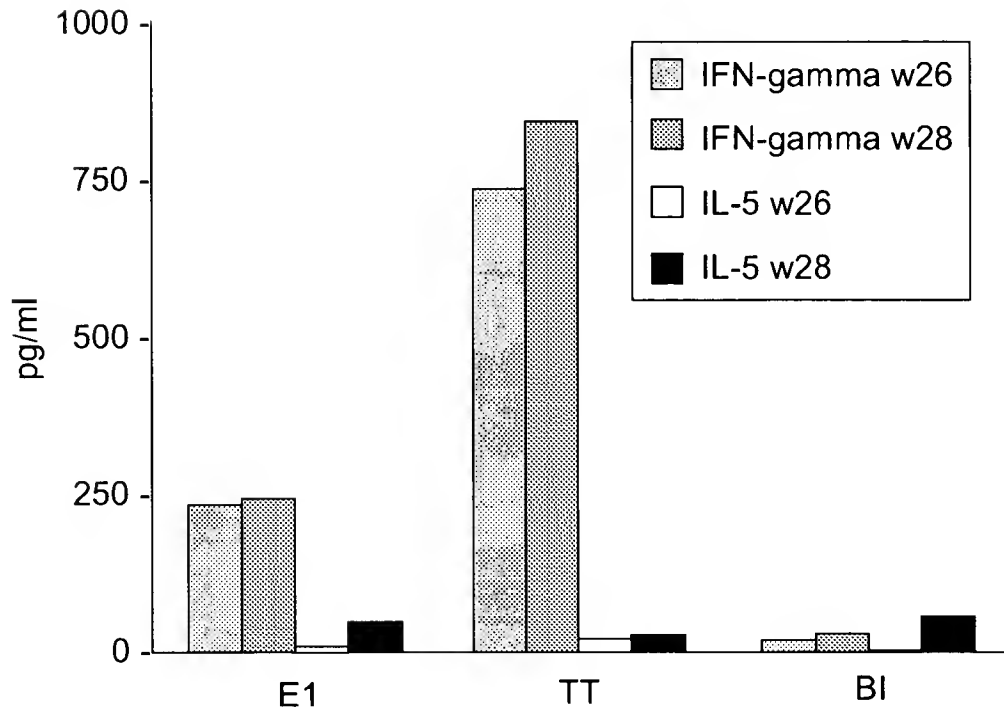


Figure 52

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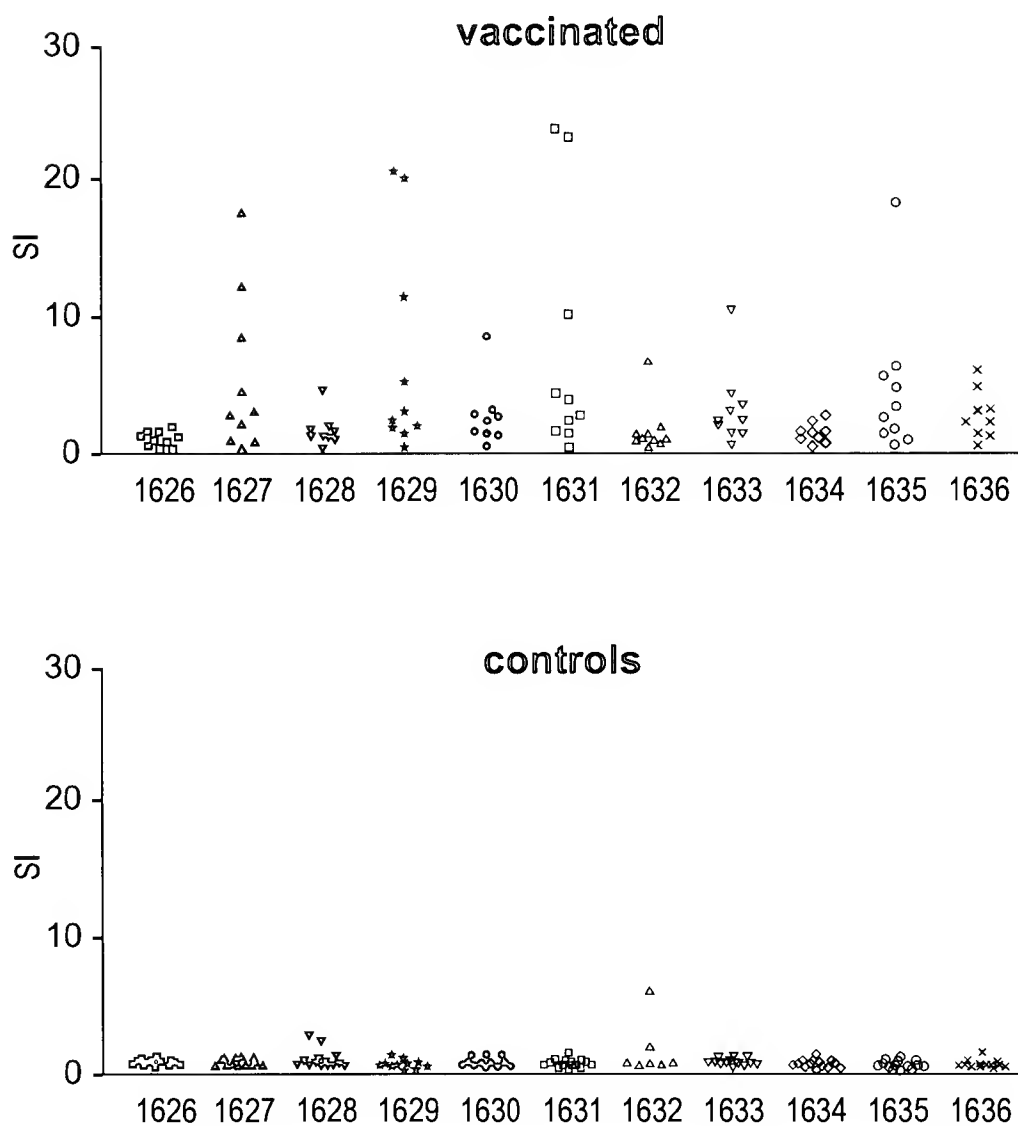


Figure 53